

=> file reg

FILE 'REGISTRY' ENTERED AT 09:49:22 ON 09 MAR 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2004 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 8 MAR 2004 HIGHEST RN 660388-34-1
DICTIONARY FILE UPDATES: 8 MAR 2004 HIGHEST RN 660388-34-1

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 6, 2004

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> file hcaplus

FILE 'HCAPLUS' ENTERED AT 09:49:27 ON 09 MAR 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)

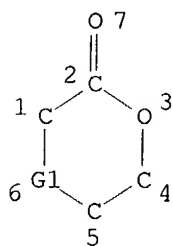
Copyright of the articles to which records in this database refer is
held by the publishers listed in the PUBLISHER (PB) field (available
for records published or updated in Chemical Abstracts after December
26, 1996), unless otherwise indicated in the original publications.
The CA Lexicon is the copyrighted intellectual property of the
the American Chemical Society and is provided to assist you in searching
databases on STN. Any dissemination, distribution, copying, or storing
of this information, without the prior written consent of CAS, is
strictly prohibited.

FILE COVERS 1907 - 9 Mar 2004 VOL 140 ISS 11
FILE LAST UPDATED: 8 Mar 2004 (20040308/ED)

This file contains CAS Registry Numbers for easy and accurate
substance identification.

=> d que

L7 STR



REP G1=(0-1) C
 NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RSPEC I
 NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE

L9 72403 SEA FILE=REGISTRY SSS FUL L7
 L10 70398 SEA FILE=HCAPLUS ABB=ON L9
 L11 169 SEA FILE=HCAPLUS ABB=ON L10 AND REFRIG?
 L12 17 SEA FILE=HCAPLUS ABB=ON L11 AND COMPOSITION?
 L13 100 SEA FILE=HCAPLUS ABB=ON L10(L) COMPAT?
 L15 0 SEA FILE=HCAPLUS ABB=ON L13 AND REFRIG?
 L16 233 SEA FILE=HCAPLUS ABB=ON L10 AND COMPATIBILI?
 L17 0 SEA FILE=HCAPLUS ABB=ON L16 AND REFRIG?
 L20 8 SEA FILE=HCAPLUS ABB=ON L13 AND FLUORO?
 L21 25 SEA FILE=HCAPLUS ABB=ON L12 OR L15 OR L17 OR L20
 L22 11 SEA FILE=HCAPLUS ABB=ON L11 AND FLUORO?
 L23 31 SEA FILE=HCAPLUS ABB=ON L21 OR L22

31 CA references with utility

=> d l23 all 1-31 hitstr

L23 ANSWER 1 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2004:143245 HCAPLUS
 ED Entered STN: 22 Feb 2004
 TI **Refrigerant compositions** comprising performance
 enhancing additives
 IN Leck, Thomas J.; Fagan, Paul Joseph
 PA E. I. Du Pont De Nemours and Company, USA
 SO PCT Int. Appl., 45 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C10M
 CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004015042	A2	20040219	WO 2003-US25025	20030808
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,				

LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
 PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
 TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
 KZ, MD, RU, TJ

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG,
 CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC,
 NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
 GW, ML, MR, NE, SN, TD, TG

PRAI US 2002-402364P P 20020808

AB The present invention is related to **refrigerant** and lubricant
 compns. containing performance-enhancing additives. The performance enhancing
 additives are found to improve the energy efficiency and capacity of vapor
 compression **refrigeration** and air conditioning systems, which
 utilize hydrofluorocarbon **refrigerants** (e.g. HFC-134a) and
 oxygenated **refrigeration** lubricants (e.g. POEs, PAGs and PVEs).

ST **refrigerant** lubricant additive

IT Alkanes

RL: MOA (Modifier or additive use); USES (Uses)
 (1,1,1-Trifluoro derivs; **refrigerant** compns. comprising
 performance enhancing additives)

IT Ethers

RL: MOA (Modifier or additive use); USES (Uses)
 (aromatic; **refrigerant** compns. comprising performance enhancing
 additives)

IT Metacyclophanes

RL: MOA (Modifier or additive use); USES (Uses)
 (calixarenes; **refrigerant** compns. comprising performance
 enhancing additives)

IT Hydrocarbons

RL: MOA (Modifier or additive use); USES (Uses)
 (chloro; **refrigerant** compns. comprising performance enhancing
 additives)

IT Hydrocarbons

RL: TEM (Technical or engineered material use); USES (Uses)
 (**fluoro**; **refrigerant** compns. comprising performance
 enhancing additives)

IT Ethers

RL: MOA (Modifier or additive use); USES (Uses)
 (**fluoroalkyl**; **refrigerant** compns. comprising
 performance enhancing additives)

IT Alcohols

RL: MOA (Modifier or additive use); USES (Uses)
 (polyhydric, esters; **refrigerant** compns. comprising
 performance enhancing additives)

IT **Refrigerants**

(**refrigerant** compns. comprising performance enhancing
 additives)

IT Amides

Crown ethers

Esters

Lactones

Nitriles

Polyoxyalkylenes

RL: MOA (Modifier or additive use); USES (Uses)
 (**refrigerant** compns. comprising performance enhancing
 additives)

IT Perfluorocarbons

RL: TEM (Technical or engineered material use); USES (Uses)

(refrigerant compns. comprising performance enhancing additives)

IT 104-50-7, γ -Octalactone 104-61-0,
 γ -Nonalactone 104-67-6, γ -Undecalactone
 108-29-2, γ -Valerolactone 111-13-7, 2-Octanone 143-24-8,
 Tetraglyme 540-88-5, tert-Butyl acetate 590-01-2, N-Butyl propionate
 706-14-9, γ -Decalactone 761-65-9, N,N-Dibutylformamide
 811-97-2, HFC-134a 2556-73-2, 1-Methylcaprolactam 2687-94-7, 1-Octyl
 pyrrolidin-2-one 12619-70-4, Cyclodextrins 17455-13-9, 18-crown-6
 ether 18436-37-8 19090-89-2 63450-32-8
 111109-77-4, Dipropylene glycol dimethyl ether 158675-78-6, R407C
 657389-33-8

RL: MOA (Modifier or additive use); USES (Uses)

(refrigerant compns. comprising performance enhancing additives)

IT 124-38-9, Carbon dioxide 7664-41-7, Ammonia 406913-95-9, Arctic EAL22

RL: TEM (Technical or engineered material use); USES (Uses)

(refrigerant compns. comprising performance enhancing additives)

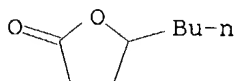
IT 104-50-7, γ -Octalactone 104-61-0,
 γ -Nonalactone 104-67-6, γ -Undecalactone
 108-29-2, γ -Valerolactone 706-14-9,
 γ -Decalactone 18436-37-8 63450-32-8

RL: MOA (Modifier or additive use); USES (Uses)

(refrigerant compns. comprising performance enhancing additives)

RN 104-50-7 HCAPLUS

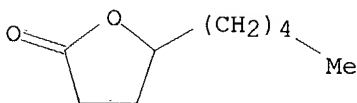
CN 2(3H)-Furanone, 5-butyldihydro- (8CI, 9CI) (CA INDEX NAME)



RN 104-61-0 HCAPLUS

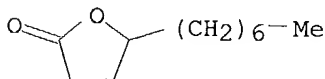
CN 2(3H)-Furanone, dihydro-5-pentyl- (8CI, 9CI) (CA INDEX NAME)

Currently available stereo shown.



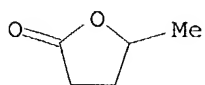
RN 104-67-6 HCAPLUS

CN 2(3H)-Furanone, 5-heptyldihydro- (8CI, 9CI) (CA INDEX NAME)



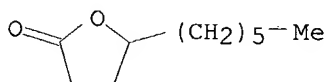
RN 108-29-2 HCAPLUS

CN 2(3H)-Furanone, dihydro-5-methyl- (8CI, 9CI) (CA INDEX NAME)



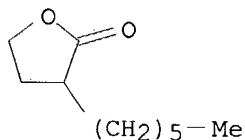
RN 706-14-9 HCAPLUS

CN 2(3H)-Furanone, 5-hexyldihydro- (8CI, 9CI) (CA INDEX NAME)



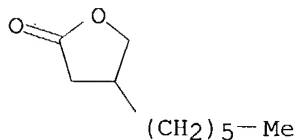
RN 18436-37-8 HCAPLUS

CN 2(3H)-Furanone, 3-hexyldihydro- (8CI, 9CI) (CA INDEX NAME)



RN 63450-32-8 HCAPLUS

CN 2(3H)-Furanone, 4-hexyldihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 2 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:417834 HCAPLUS

DN 138:404003

ED Entered STN: 01 Jun 2003

TI Synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups

IN Oumar-Mahamat, Halou; Douglas, Lowen A.; Ardito, Susan C.

PA Exxonmobil Chemical Patents Inc., USA

SO PCT Int. Appl., 33 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C10M105-68

ICS C10M105-72; C07C269-04; C07C271-16; C07C271-20; C07C323-41;
C07C323-42

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

Section cross-reference(s): 38

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----

PI WO 2003044136 A1 20030530 WO 2002-US26694 20020822
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2001-992675 A 20011119

OS MARPAT 138:404003

- AB Synthetic lubricant basestocks containing ester and carbamate functions with (optionally) an amide function are prepared by reaction of an amine, of formula (XR₁)₂NH (X = OH, SH, NHY, and C₄R₅R₆; R₁ = C₁-4-alkylene, or alkyl-substituted C₁-4-alkylene, in which both R₁ groups are not the same), a cyclic compound of formula (R₂)ZCOZ₁(R₃) (R₂ and R₃ are alkenyl and alkylalkenyl; Z and Z₁ = O, S, CR₇R₈, in which Z and Z₁ are not CR₇R₈); and an acid of formula RCOOH (R, R₄, R₅, R₆, R₇, and R₈ = H, hydrocarbyl, alkenyl, and C₁-60-alkyl; and Y = H or C₁-60-alkyl). The condensation products of the amine and the cyclic compds. are then reacted with the carboxylic acids (e.g., adipic acid, pentanoic acid, heptanoic acid, octanoic acid, decanoic acid, isooctadecanoic acid, oleic acid, 2-ethylhexanoic acid, nonanoic acid, isononanoic acid, and isooctanoic acid). The cyclic compds. are preferably propylene carbonate and ethylene carbonate. Higher-viscosity complex multifunctional esters are obtained with polycarboxylic acids or acid anhydrides and/or polyamines.
- ST multifunctional carbamate ester amide lubricating basestock; lubricant basestock multifunctional carbamate ester amide; amine carbonate acid condensation carbamate lubricant basestock
- IT Functional groups
 (alkoxycarbonyl groups, lubricants containing; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)
- IT Lubricating oils
 (base oils, synthetic, two-stroke; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)
- IT Lubricating oils
 (base oils, synthetic; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)
- IT Functional groups
 (carbamate, lubricants containing; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)
- IT Lubricating oils
 (compressor, for hydrofluorocarbon **refrigerants**; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)
- IT Amides, uses
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (ester group-containing, lubricant basestocks; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)
- IT Hydrocarbons, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (**fluoro, refrigerants**; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)
- IT **Refrigerants**
 (hydrofluorocarbons; synthetic multifunctional lubricating basestocks

containing carbamate and ester functional groups)

IT Amide group
(lubricants containing; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)

IT Carboxylic acids, uses
Fatty acids, uses
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(reaction products with secondary amines and cyclic carbonates, lubricant basestocks; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)

IT Amines, uses
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(secondary, reaction products with carboxylic acids and cyclic carbonates, lubricant basestocks; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)

IT Lubricants
(synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)

IT 96-49-1D, Ethylene carbonate, reaction products with carboxylic acids and secondary amines 108-32-7D, Propylene carbonate, reaction products with carboxylic acids and secondary amines 109-52-4D, Pentanoic acid, reaction products with cyclic carbonates and diethanolamine 111-14-8D, Heptanoic acid, reaction products with cyclic carbonates and diethanolamine 111-42-2D, Diethanolamine, reaction products with cyclic carbonates and carboxylic acids 112-05-0D, Nonanoic acid, reaction products with cyclic carbonates and diethanolamine 112-80-1D, Oleic acid, reaction products with cyclic carbonates and diethanolamine 124-04-9D, Adipic acid, reaction products with cyclic carbonates and diethanolamine 124-07-2D, Octanoic acid, reaction products with cyclic carbonates and diethanolamine 149-57-5D, 2-Ethylhexanoic acid, reaction products with cyclic carbonates and diethanolamine 334-48-5D, Decanoic acid, reaction products with cyclic carbonates and diethanolamine 463-79-6D, Carbonic acid, cyclic alkylene esters, reaction products with carboxylic acids and secondary amines 25103-52-0D, Isooctanoic acid, reaction products with cyclic carbonates and diethanolamine **25377-73-5D**, Dodecenylsuccinic anhydride, reaction products with cyclic carbonates and diethanolamine 26896-18-4D, Isononanoic acid, reaction products with cyclic carbonates and diethanolamine 30399-84-9D, Isooctadecanoic acid, reaction products with cyclic carbonates and diethanolamine
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(lubricant basestock; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)

IT 811-97-2, R-134a
RL: NUU (Other use, unclassified); USES (Uses)
(**refrigerant**; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Dorn, P; US 3652240 A 1972 HCAPLUS
(2) Oumar-Mahamat, H; US 5962379 A 1999 HCAPLUS
(3) Sabahi, M; US 5240630 A 1993 HCAPLUS
(4) Wollenberg, R; US 4713188 A 1987 HCAPLUS

IT **25377-73-5D**, Dodecenylsuccinic anhydride, reaction products with cyclic carbonates and diethanolamine

RL: RCT (Reactant); TEM (Technical or engineered material use); RACT
(Reactant or reagent); USES (Uses)
(lubricant basestock; synthetic multifunctional lubricating basestocks
containing carbamate and ester functional groups)

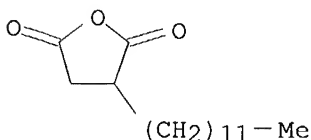
RN 25377-73-5 HCAPLUS

CN 2,5-Furandione, 3-(dodecenyl)dihydro- (9CI) (CA INDEX NAME)

CM 1

CRN 2561-85-5

CMF C16 H28 O3



L23 ANSWER 3 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:361555 HCAPLUS

DN 139:229648

ED Entered STN: 13 May 2003

TI Influence of storage temperature on the volatile compounds of young white wines

AU Perez-Coello, M. S.; Gonzalez-Vinas, M. A.; Garcia-Romero, E.;
Diaz-Maroto, M. C.; Cabezudo, M. D.

CS Universidad de Castilla-La Mancha, Facultad de Ciencias Quimicas,
Departamento de Quimica Analitica y Tecnologia de Alimentos, Universidad
de Castilla-La Mancha, Ciudad Real, 13071, Spain

SO Food Control (2003), 14(5), 301-306

CODEN: FOOCEV; ISSN: 0956-7135

PB Elsevier Science B.V.

DT Journal

LA English

CC 17-13 (Food and Feed Chemistry)

AB A total of 38 volatile components from 90 white wines stored under
uncontrolled temperature conditions in the marketplace were analyzed. The
composition of volatiles in the wines changed with storage time,
namely, the concentration of isoamyl acetate and Et 4-hydroxybutyrate decreased
and the concentration Et lactate, di-Et succinate, Et monosuccinate, and di-Et
malate increased. Sensory and chemical changes were less pronounced in wines
stored chilled (5 °C), suggesting that chilled storage may be used
to increase the shelf life of young white wines.

ST volatile aroma white wine **refrigeration** cold storage

IT Temperature effects, biological

(cold; storage temperature influence on volatile compds. of young white
wines)

IT Flavor

Odor and Odorous substances

Refrigeration

(storage temperature influence on volatile compds. of young white wines)

IT Wine

(white; storage temperature influence on volatile compds. of young white
wines)

IT 60-12-8, 2-Phenylethanol 79-09-4, Propionic acid, biological studies

79-31-2, Isobutyric acid 96-48-0, γ -Butyrolactone
97-64-3, Ethyl lactate 98-01-1, Furfural, biological studies 100-51-6,
Benzyl alcohol, biological studies 103-45-7, 2-Phenylethyl acetate
105-54-4, Ethyl butanoate 106-32-1, Ethyl caprylate 107-92-6, Butyric
acid, biological studies 110-38-3, Ethyl caprate 111-27-3, 1-Hexanol,
biological studies 111-35-3, 3-Ethoxypropanol 123-25-1, Diethyl
succinate 123-66-0, Ethyl caproate 123-92-2, Isoamyl acetate
124-07-2, Octanoic acid, biological studies 142-62-1, Caproic acid,
biological studies 142-92-7, Hexyl acetate 334-48-5, Capric acid
503-74-2, Isovaleric acid 505-10-2, 3-Methylthio-1-propanol 513-86-0
617-35-6, Ethyl pyruvate 818-38-2, Diethyl glutarate 928-96-1,
Cis-3-Hexen-1-ol 928-97-2, Trans-3-Hexen-1-ol 999-10-0, Ethyl
4-hydroxybutyrate 1070-34-4, Monoethyl succinate 1917-65-3
5405-41-4, Ethyl 3-hydroxybutyrate 7554-12-3, Diethyl malate
7786-61-0, 4-Vinyl guaiacol 13434-12-3, N-3(Methylbutyl)acetamide
19329-89-6, Isoamyl lactate 36678-05-4, 1,3-Propanediol acetate
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(storage temperature influence on volatile compds. of young white wines)

RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

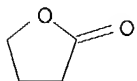
- (1) Aldave, L; Shelf life studies of foods and beverages 1993, P923 HCAPLUS
- (2) Chisholm, M; American Journal of Enology and Viticulture 1995, V46, P56 HCAPLUS
- (3) Cutzach, I; International Journal of Vine and Wine Sciences 1998, V32(2) HCAPLUS
- (4) Di Stefano, R; Rivista di Viticoltura e Enologia 1983, V36, P245 HCAPLUS
- (5) Edwards, T; American Journal of Enology and Viticulture 1985, V36(2), P118 HCAPLUS
- (6) Escudero, A; 6th Symposium International D'Oenologie 99 1999, P422
- (7) Ferreira, V; Zeitschrift fur Lebensmittel-Untersuchung und-Forschung A 1997, V205, P392 HCAPLUS
- (8) Gonzalez-Vinas, M; Food Chemistry 1996, V56, P399 HCAPLUS
- (9) Gonzalez-Vinas, M; Journal of Food Quality 1998, V21, P285 HCAPLUS
- (10) Iso; Guide for the installation of a chamber for sensory analysis 1988, ISO 8589, P9
- (11) Iso; Sensory analysis Apparatus Wine-tasting glass 1977, ISO 3591, P3
- (12) Lavigne-Cruege, V; 6th Symposium International D'Oenologie 99 1999, P433
- (13) Marais, J; The shelf life of foods and beverages 1986, P169 HCAPLUS
- (14) Marais, J; Vitis 1979, V18, P254 HCAPLUS
- (15) Marais, J; Vitis 1980, V19, P151
- (16) Ough, C; American Journal of Enology and Viticulture 1985, V36(1), P18 HCAPLUS
- (17) Perez-Coello, M; Zeitschrift fur Lebensmittel-Untersuchung und-Forschung A 1999, V208, P408 HCAPLUS
- (18) Ramey, D; Journal of Agricultural and Food Chemistry 1980, V28, P928 HCAPLUS
- (19) Rapp, A; Experientia 1986, V42, P873 HCAPLUS
- (20) Rapp, A; Frontiers of flavor 1988, P799 HCAPLUS
- (21) Rapp, A; Shelf life studies of foods and beverages Chemical, biological, physical and nutritional aspects 1993, P891 HCAPLUS
- (22) Rapp, A; The shelf life of foods and beverages 1986, P141 HCAPLUS

IT 96-48-0, γ -Butyrolactone

RL: BSU (Biological study, unclassified); BIOL (Biological study)
(storage temperature influence on volatile compds. of young white wines)

RN 96-48-0 HCAPLUS

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



L23 ANSWER 4 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:295407 HCAPLUS
DN 139:35303
ED Entered STN: 17 Apr 2003
TI Analysis of Volatiles in Meat from Iberian Pigs and Lean Pigs after
Refrigeration and Cooking by Using SPME-GC-MS
AU Estevez, Mario; Morcuende, David; Ventanas, Sonia; Cava, Ramon
CS Tecnologia de los Alimentos Facultad de Veterinaria, Universidad de
Extremadura, Caceres, 10071, Spain
SO Journal of Agricultural and Food Chemistry (2003), 51(11), 3429-3435
CODEN: JAFCAU; ISSN: 0021-8561
PB American Chemical Society
DT Journal
LA English
CC 17-1 (Food and Feed Chemistry)
AB The volatile compds. generated in meat from Iberian and lean pigs after
four different treatments (raw, **refrigerated**, cooked, and
refrigerated cooked meat) were analyzed. The different treatments
showed different volatile profiles. Me alcs. and ketones (such as
2-ethyl-hexan-1-ol, 2-methyl-butan-1-ol, 3-methyl-butan-1-ol, and
3-hydroxy-butan-2-one) were the most representative in
refrigerated meat because of the degradation of carbohydrates and
proteins together with the Strecker degradation pathway. Lipid-derived
volatiles were the most abundant in cooked meat and **refrigerated**
cooked meat. Meat from different pig breeds presented different volatile
profiles, probably due to different enzymic and oxidative deterioration
susceptibility. Otherwise, the fat content and its **compositional**
characteristics also played an important role in the generation of
volatiles. As compared to samples from lean pigs, muscles from Iberian
pigs showed a higher content of heme iron that may have promoted the
generation of higher content of total lipid-derived volatiles during the
refrigeration of cooked meat. Despite that, the formation of
volatiles with low thresholds and related to intense rancidity perception
likely to be derived from polyunsatd. fatty acids was higher in lean pork
than in meat from Iberian pigs. This might be expected to lead to a more
intense development of a warmed over flavor during **refrigeration**
of cooked samples from lean pigs.
ST volatile detn pork **refrigeration** cooking SPME GC MS
IT Cooking
Flavor
Rancidity
Refrigeration
Volatile substances
(anal. of volatiles in meat from Iberian pigs and lean pigs after
refrigeration and cooking by using SPME-GC-MS)
IT Alcohols, biological studies
Aldehydes, biological studies
Carboxylic acids, biological studies
Esters, biological studies
Fatty acids, biological studies
Hydrocarbons, biological studies
Ketones, biological studies

Terpenes, biological studies

RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)

(anal. of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)

IT Fats and Glyceridic oils, biological studies

RL: BSU (Biological study, unclassified); BIOL (Biological study)

(anal. of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)

IT Mass spectrometry

(gas chromatog. combined with; anal. of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)

IT Gas chromatography

(mass spectrometry combined with; anal. of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)

IT Lipids, biological studies

RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)

(neutral; anal. of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)

IT Food analysis

(of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)

IT Lipids, biological studies

RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)

(polar; anal. of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)

IT Meat

(pork; anal. of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)

IT Microextraction

(solid-phase; anal. of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)

IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, Octadecanoic acid, biological studies 60-12-8, 2-Phenylethanol 60-33-3, 9,12-Octadecadienoic acid (9Z,12Z)-, biological studies 64-19-7, Acetic acid, biological studies 66-25-1, Hexanal 71-41-0, Pentan-1-ol, biological studies 75-18-3, Dimethyl sulfide 79-34-5, 1,1,2,2-Tetrachloroethane **96-48-0** 100-52-7, Benzaldehyde, biological studies 104-76-7, 2-Ethylhexan-1-ol 107-92-6, Butanoic acid, biological studies 108-38-3, 1,3-Dimethylbenzene, biological studies 108-88-3, Methylbenzene, biological studies 110-00-9D, Furan, derivs. 110-43-0, Heptan-2-one 110-62-3, Pentanal 110-86-1, Pyridine, biological studies 111-13-7, Octan-2-one 111-27-3, Hexan-1-ol, biological studies 111-70-6, Heptan-1-ol 111-71-7, Heptanal 111-87-5, Octan-1-ol, biological studies 112-05-0, Nonanoic acid 112-31-2, Decanal 112-53-8, Dodecan-1-ol 112-72-1, Tetradecan-1-ol 112-80-1, 9-Octadecenoic acid (9Z)-, biological studies 123-51-3, 3-Methylbutan-1-ol 124-07-2, Octanoic acid, biological studies 124-13-0, Octanal 124-18-5, Decane 124-19-6, Nonanal 137-32-6, 2-Methylbutan-1-ol 138-86-3, Limonene 141-78-6, Acetic acid ethyl ester, biological studies 142-62-1, Hexanoic acid, biological studies 143-07-7, Dodecanoic acid, biological studies 373-49-9 431-03-8, Butane-2,3-dione 463-40-1 506-12-7, Heptadecanoic acid 506-30-9, Eicosanoic acid 506-32-1 513-85-9, Butane-2,3-diol 513-86-0,

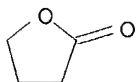
3-Hydroxybutan-2-one 544-63-8, Tetradecanoic acid, biological studies 585-25-1, Octane-2,3-dione 638-66-4, Octadecanal 646-04-8, Pent-(E)-2-ene 1576-87-0, Pent-(E)-2-enal 1669-44-9, Oct-3-en-2-one 2548-87-0, Oct-(E)-2-enal 3391-86-4, Oct-1-en-3-ol 3777-69-3, 2-Pentylfuran 3913-81-3, Dec-(E)-2-enal 4313-03-5, Hepta-(E,E)-2,4-dienal 5932-79-6, Nonan-4-ol 6750-03-4, Nona-2,4-dienal 7493-59-6, Undecane-2,3-dione 13475-82-6, 2,2,4,6,6-Pentamethylheptane 18829-55-5, Hept-(E)-2-enal 18829-56-6, Non-(E)-2-enal 25152-83-4, Deca(E,Z)-2,4-dienal 25152-84-5, Deca(E,E)-2,4-dienal 28040-00-8 32839-28-4 53448-07-0, Undec-(E)-2-enal 56700-77-7 68820-35-9, Undec-4-enal, (E)-
 RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)

(anal. of volatiles in meat from Iberian pigs and lean pigs after
refrigeration and cooking by using SPME-GC-MS)

RE.CNT 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE

- (1) Ahn, D; Meat Sci 1997, V49, P27
- (2) Bailey, M; Lipid Oxidation in Food 1992, P123
- (3) Bligh, E; Can J Biochem Phys 1959, V37, P911 HCAPLUS
- (4) Byrne, D; Meat Sci 2002, V61, P127
- (5) Cameron, N; Meat Sci 2000, V55, P187 HCAPLUS
- (6) Carrapiso, A; J Agric Food Chem 2002, V50, P6453 HCAPLUS
- (7) Cava, R; Food Chem 2000, P51 HCAPLUS
- (8) Cava, R; Proc 48th Cong Meat Sci Technol 2002, P554
- (9) Devos, M; Standardized Human Olfactory Thresholds 1990, P165
- (10) Elmore, J; J Agric Food Chem 1999, V47, P1619 HCAPLUS
- (11) Estevez, M; Meat Sci 2003, V64, P499 HCAPLUS
- (12) Estevez, M; Meat Sci, in press 2003
- (13) Estevez, M; Proc 48th Cong Meat Sci Technol 2002, P564
- (14) Frankel, E; J Am Oil Chem Soc 1984, V61, P1908 HCAPLUS
- (15) Hornsey, H; J Sci Food Agric 1956, V7, P534 HCAPLUS
- (16) Hwang, K; Food Res Int 1999, V32, P389 HCAPLUS
- (17) Kaluzny, M; J Lipid Res 1985, V26, P135 HCAPLUS
- (18) Kondjoyan, N; A Compilation of Relative Retention Indices of the Analysis of Aromatic Compounds 1996
- (19) Konopka, U; Z Lebensm-Unters Forsch 1995, V201, P339 HCAPLUS
- (20) Kristensen, L; Food Chem 2001, V73, P433 HCAPLUS
- (21) Lopez-Bote, C; J Nutr 1997, V127, P1176 HCAPLUS
- (22) Machiels, D; Proc 48th Cong Meat Sci Technol 2002, P262
- (23) Machiels, D; Proc 48th Cong Meat Sci Technol 2002, P264
- (24) Montel, M; Meat Sci 1998, V49, P111
- (25) Morrissey, P; Meat Sci 1998, V49, P573 HCAPLUS
- (26) Mottram, D; Food Chem 1998, V62, P415 HCAPLUS
- (27) Nam, K; Innovative Food Sci Emerging Technol 2002, V3, P73 HCAPLUS
- (28) Pawliszyn, J; Solid-Phase Microextraction Theory and Practice 1997
- (29) Pearson, A; Adv Food Res 1977, V23, P1 HCAPLUS
- (30) Rossell, C; J Sci Food Agric 1998, V76, P117
- (31) Serra, X; Livest Prod Sci 1998, V56, P215
- (32) Shahidi, F; Flavor Of Meat and Meat Products 1994, P1 HCAPLUS
- (33) Shahidi, F; J Food Lipids 1993, V1, P177
- (34) Specht, K; J Agric Food Chem 1994, V24, P2246
- (35) Spss; SPSS for Windows:Advanced Statistic Release 1997
- (36) Stahnke, L; J Food Sci 2002, V67(5), P1914 HCAPLUS
- (37) Tims, M; Food Technol 1958, V12, P240 HCAPLUS
- (38) Vergnais, L; J Agric Food Chem 1998, V46, P228 HCAPLUS
- (39) Vinauskiene, R; Proc 48th Cong Meat Sci Technol 2002, P292
- (40) Warris, P; Meat Focus Int 1990, V5, P179

(41) Wettasinghe, M; Food Res Int 2001, V34, P149 HCAPLUS
 IT 96-48-0
 RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
 (anal. of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)
 RN 96-48-0 HCAPLUS
 CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



L23 ANSWER 5 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1998:712314 HCAPLUS
 DN 129:333162
 ED Entered STN: 10 Nov 1998
 TI Polyol and complex esters for use with, in particular, fluorinated **refrigerants**
 IN Koistinen, Jari; Rissanen, Kari; Silvennoinen, Laura; Koskimies, Salme
 PA Neste Oy, Finland
 SO PCT Int. Appl., 19 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C10M105-42
 ICS C09K005-04; C07C069-67
 CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
 FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9846706	A1	19981022	WO 1998-FI329	19980414
	W:				
	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW:				
	GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	FI 9701548	A	19981012	FI 1997-1548	19970411
	FI 9800730	A	19981012	FI 1998-730	19980331
	AU 9868361	A1	19981111	AU 1998-68361	19980414
	EP 973853	A1	20000126	EP 1998-913796	19980414
	R:				
	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, LT, LV, FI				
	JP 2001526712	T2	20011218	JP 1998-543528	19980414
PRAI	FI 1997-1548	A	19970411		
	FI 1997-1549	A	19970411		
	FI 1998-730	A	19980331		
	WO 1998-FI329	W	19980414		
AB	The invention concerns a refrigerant composition which comprises a chlorine-free hydrofluorocarbon based refrigerant and, mixed with the refrigerant , a lubricant comprising a polyol ester. According to the invention the polyol ester comprises an ester of				

3-hydroxy-2,2-dimethylpropyl-3-hydroxy-2,2-dimethylpropionate, the carboxylic acid residue of which is derived from a linear or branched C4-18-carboxylic acid or an anhydride thereof, or it is derived from a mixture of linear or branched C4-18-carboxylic acids or anhydrides thereof. The present invention also concerns novel complex ester of 3-hydroxy-2,2-dimethylpropyl-3-hydroxy-2,2-dimethylpropionate, which contain residues of mono- or bivalent carboxylic acids. The novel esters exhibit good solubility in fluorinated hydrocarbons and excellent lubricating properties.

ST polyol complex ester lubricant fluorinated **refrigerant**

IT Hydrocarbons, uses

RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)

(**fluoro, refrigerants**; polyol and complex esters

for use with, in particular, fluorinated **refrigerants**)

IT **Refrigerants**

(hydrofluorocarbons; polyol and complex esters for use with, in particular, fluorinated **refrigerants**)

IT Lubricants

Lubricating oils

(polyol and complex esters for use with, in particular, fluorinated **refrigerants**)

IT 77-85-0, Trimethylolethane 77-99-6 94-96-2, 2-Ethyl-1,3-hexanediol

97-72-3, Isobutyric anhydride 105-08-8, 1,4-Cyclohexanedimethanol

108-30-5, reactions 110-15-6, Succinic acid, reactions

110-94-1, Glutaric acid 111-14-8, Heptanoic acid 111-16-0, Pimelic

acid 111-20-6, Sebacic acid, reactions 115-77-5, reactions 115-84-4

123-99-9, Azelaic acid, reactions 124-04-9, Hexanedioic acid, reactions

124-07-2, Octanoic acid, reactions 126-30-7 141-82-2, Propanedioic

acid, reactions 143-07-7, Dodecanoic acid, reactions 144-19-4,

2,2,4-Trimethyl-1,3-pentanediol 144-62-7, Ethanedioic acid, reactions

149-57-5, 2-Ethylhexanoic acid 505-48-6, Octanedioic acid 552-30-7

595-46-0, Dimethylmalonic acid 1115-20-4 54502-37-3, 2-Ethylbutanoic anhydride

RL: RCT (Reactant); RACT (Reactant or reagent)

(in preparation of polyol and complex esters for use with, in particular, fluorinated **refrigerants**)

IT 23144-54-9P 215024-63-8P 215024-65-0P 215024-67-2P 215024-69-4P

215024-71-8P 215024-77-4P

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyol and complex esters for use with, in particular, fluorinated **refrigerants**)

IT 75-37-6, R 152a 359-35-3, R 134 420-46-2, R 143a 430-66-0, R 143

624-72-6, R 152 811-97-2, R 134a

RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)

(**refrigerant**; polyol and complex esters for use with, in particular, fluorinated **refrigerants**)

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Henkel Corporation; WO 9324587 A1 1993 HCAPLUS

(2) Henkel Corporation; WO 9513333 A1 1998 HCAPLUS

(3) Kao Corporation; EP 0415778 A1 1991 HCAPLUS

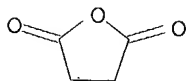
(4) Nippon Oil Co Ltd; EP 0435253 B1 1991 HCAPLUS

(5) Nippon Oils & Fats Co Ltd; JP A4164046 1992

(6) Sanken Kako Kk; JP A205179267 1993

(7) Sanken Kako Kk; JP A207216372 1995

IT 108-30-5, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (in preparation of polyol and complex esters for use with, in particular,
 fluorinated **refrigerants**)
 RN 108-30-5 HCAPLUS
 CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 6 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1998:712313 HCAPLUS
 DN 129:333161
 ED Entered STN: 10 Nov 1998
 TI Complex esters for use with fluorinated **refrigerants**
 IN Ankner, Kjell; Glad, Essi; Aalto, Mikko; Saranpaa, Virpi
 PA Neste Oy, Finland
 SO PCT Int. Appl., 16 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C10M105-42
 ICS C09K005-42
 CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
 FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9846705	A1	19981022	WO 1998-FI312	19980408
	W:			AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM	
	RW:			GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG	
	FI 9701548	A	19981012	FI 1997-1548	19970411
	AU 9868347	A1	19981111	AU 1998-68347	19980408
	EP 973852	A1	20000126	EP 1998-913779	19980408
	R:			AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, LT, LV, FI	
	JP 2001518965	T2	20011016	JP 1998-543246	19980408
	US 2002036283	A1	20020328	US 2001-978987	20011015
PRAI	FI 1997-1548	A	19970411		
	WO 1998-FI312	W	19980408		
	US 1999-402669	A1	19991008		
AB	The invention concerns refrigerant compns. which comprise a hydrofluorocarbon based refrigerant and, mixed with the refrigerant , a polyol ester based lubricant. According to the invention the polyol ester comprises a diol having a strongly sterically hindered hydrogen attached to the carbon in position 2, the diol being esterified with a mixture of mono- and dibasic carboxylic acids. In particular the diol is 2-ethyl-1,3-hexanediol or 1,4-dimethylolcyclohexane. The complex esters used in refrigerant				

mixts. have good lubricant properties and good solubility in HFC compds.

ST lubricant complex ester fluorinated **refrigerant**

IT Lubricants
Lubricating oils
(complex esters for use as lubricants with fluorinated **refrigerants**)

IT Hydrocarbons, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(**fluoro, refrigerants**; complex esters for use as lubricants with fluorinated **refrigerants**)

IT **Refrigerants**
(hydrofluorocarbons; complex esters for use as lubricants with fluorinated **refrigerants**)

IT 63468-12-2P 215024-32-1P 215024-34-3P 215024-36-5P 215024-38-7P 215024-40-1P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(complex esters for use with fluorinated **refrigerants**)

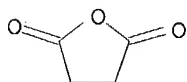
IT 77-85-0, Trimethylolethane 77-99-6 94-96-2, 2-Ethyl-1,3-hexanediol 105-08-8, 1,4-Cyclohexanedimethanol **108-30-5**, reactions 110-15-6, Succinic acid, reactions 110-94-1, Glutaric acid 111-16-0, Pimelic acid 111-20-6, Sebacic acid, reactions 115-77-5, reactions 115-84-4 123-99-9, Azelaic acid, reactions 124-04-9, Hexanedioic acid, reactions 126-30-7 141-82-2, Propanedioic acid, reactions 144-19-4 144-62-7, Ethanedioic acid, reactions 505-48-6, Octanedioic acid 595-46-0, Dimethylmalonic acid 1115-20-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of complex esters for use as lubricants with fluorinated **refrigerants**)

IT 75-37-6, R 152a 359-35-3, R 134 420-46-2, R 143a 430-66-0, R 143 624-72-6, R 152 811-97-2, R 134a
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(**refrigerant**; complex esters for use as lubricants with fluorinated **refrigerants**)

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Henkel Corporation; WO 9324587 A1 1993 HCAPLUS
(2) Henkel Corporation; WO 9513333 A1 1995 HCAPLUS
(3) Kao Corp; JP 3217493 A 1991
(4) Kao Corp; JP A6009978 1994
(5) Kao Corporation; EP 0415778 A1 1991 HCAPLUS
(6) Nippon Oil Co Ltd; EP 0435253 A1 1991 HCAPLUS
(7) Nippon Oils & Fats Co Ltd; JP 6041559 A 1994

IT **108-30-5**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of complex esters for use as lubricants with fluorinated **refrigerants**)

RN 108-30-5 HCAPLUS
CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 7 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1996:319093 HCAPLUS

DN 124:347925

ED Entered STN: 01 Jun 1996

TI Lubricant composition with good seal compatibility

IN Holt, David Gary Lawton; Vernon, Patrick Desmond Fraser

PA Exxon Research and Engineering Co., USA

SO Brit. UK Pat. Appl., 14 pp.

CODEN: BAXXDU

DT Patent

LA English

IC ICM C10M107-28

ICI C10M107-28, C10M133-04, C10M135-02, C10M135-20, C10M137-06, C10M145-14, C10M149-14, C10M155-02, C10M159-24; C10N010-04, C10N020-02, C10N020-04, C10N030-00, C10N030-04, C10N040-25

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 2292747	A1	19960306	GB 1994-17220	19940826
	GB 2292747	B2	19980916		
	CA 2156775	AA	19960227	CA 1995-2156775	19950823
PRAI	GB 1994-17220		19940826		

AB An automotive crankcase lubricant containing a polar dispersant, e.g. having amide, imide or amine groups, is rendered compatible with **fluorocarbon** and nitrile material used in engine seals by using a base oil which contains 2-50 weight% of a copolymer of ≥ 1 C10-16 α -olefins and ≥ 1 dicarboxylic acid esters of C3-8 monoalkyl alcs., the copolymer having a weight average mol.-weight 500-3000 and a kinematic

viscosity 3-100 cSt (mm²/s) at 100°. The balance of the base oil may be a polyalphaolefin. The exemplified dispersant is a polyisobutenyl succinic anhydride-polyamine reaction product.

ST lubricant compn crankcase seal compatibility

IT Alkenes, uses

RL: NUU (Other use, unclassified); USES (Uses)

(C10-16 α -, polymers, with α,β -unsatd. dicarboxylic Bu esters, base oils containing; lubricant compns. with good seal compatibility)

IT Lubricating oils

(crankcase, containing base oils of copolymers of α -olefins and dicarboxylic acid C3-8 esters with good seal compatibility)

IT Carboxylic acids, uses

RL: NUU (Other use, unclassified); USES (Uses)

(di-, α,β -unsatd., esters, polymers with C10-16- α -olefins, base oils containing; lubricant compns. with good seal compatibility)

IT Polyamines

RL: NUU (Other use, unclassified); USES (Uses)

(polyethylene-, reaction products with polyisobutenylsuccinic anhydride; dispersants for lubricant compns. with good seal compatibility)

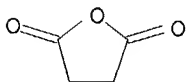
IT Alkenes, uses

RL: NUU (Other use, unclassified); USES (Uses)

(α -, polymers, base oils containing; lubricant compns. with good seal compatibility)

IT **108-30-5D**, Succinic anhydride, polyisobutenyl derivs., reaction

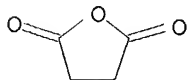
products with polyamines
 RL: NUU (Other use, unclassified); USES (Uses)
 (dispersants; lubricant compns. with good seal **compatibility**)
 IT 108-30-5D, Succinic anhydride, polyisobutenyl derivs., reaction
 products with polyamines
 RL: NUU (Other use, unclassified); USES (Uses)
 (dispersants; lubricant compns. with good seal **compatibility**)
 RN 108-30-5 HCAPLUS
 CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 8 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1995:498384 HCAPLUS
 DN 122:243925
 ED Entered STN: 20 Apr 1995
 TI Dispersants for **fluoroelastomer**-compatible crankcase and
 drivetrain lubricating oils
 IN Slama, Francis J.; Vettel, Paula Roach
 PA Ethyl Corp., USA
 SO PCT Int. Appl., 18 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C10M149-00
 ICS C10M155-00
 CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
 Section cross-reference(s): 39
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9500607	A1	19950105	WO 1994-US7242	19940624
	W: AU, CA, JP, NZ				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	US 5454962	A	19951003	US 1993-82991	19930625
	CA 2165973	AA	19950105	CA 1994-2165973	19940624
	AU 9472138	A1	19950117	AU 1994-72138	19940624
	AU 675865	B2	19970220		
	EP 705322	A1	19960410	EP 1994-921395	19940624
	EP 705322	B1	19980805		
	R: BE, DE, ES, FR, GB, IT				
	JP 08512068	T2	19961217	JP 1994-503128	19940624
PRAI	US 1993-82991	A	19930625		
	WO 1994-US7242	W	19940624		
AB	Lubricating oil dispersants that impart fluoroelastomer seal compatibility properties to the base oil are prepared by reacting aminoguanidine or a basic salt of aminoguanidine with a hydrocarbyl-substituted succinic acid or anhydride in a mol ratio of from about 0.4 to about 1.2 mol aminoguanidine (or basic salt) per mol of the succinic acid (or anhydride). The product, which can be borated, is characterized by IR peaks at 1590 cm ⁻¹ and (optionally) at 1725 cm ⁻¹ , depending on the mol ratio of the reactants. An additive, with a 1.1:1 (mol ratio) aminoguanidine-succinic acid derivative, was prepared in two stages				

- by: (1) reaction of polyisobutenylsuccinic anhydride (prepared from polyisobutylene with number average mol. weight .apprx.2060) with aminoguanidine bicarbonate in a neutral base oil at 170° for 2 h with stirring, followed by (2) boration with boric acid at 160° for 2 h, to yield a product containing 0.2 weight% B.
- ST **fluoroelastomer** compatible lubricating oil dispersant; polyisobutenylsuccinic anhydride aminoguanidine lubricating oil dispersant; borated lubricant dispersant **fluoroelastomer** compatibility; drive train lubricant **fluoro** rubber seal
- IT Seals (mechanical)
(**fluoroelastomer**; aminoguanidine-succinic acid-based dispersants for **fluoroelastomer**-compatible crankcase and drive-train lubricating oils)
- IT Lubricating oil additives
(dispersants, aminoguanidine-succinic acid-based dispersants for **fluoroelastomer**-compatible crankcase and drive-train lubricating oils)
- IT Rubber, synthetic
RL: DEV (Device component use); MSC (Miscellaneous); USES (Uses)
(**fluoro**, aminoguanidine-succinic acid-based dispersants for **fluoroelastomer**-compatible crankcase and drive-train lubricating oils)
- IT 79-17-4DP, Aminoguanidine, basic salts, reaction products with hydrocarbyl-substituted succinic acid 79-17-4DP, Aminoguanidine, reaction products with hydrocarbyl-substituted succinic acid **108-30-5DP**, Succinic anhydride, polyisobutenyl derivs., reaction products with aminoguanidine bicarbonate, borated 110-15-6DP, Succinic acid, hydrocarbyl-substituted, reaction products with aminoguanidine or aminoguanidine salts 2582-30-1DP, Aminoguanidine bicarbonate, reaction products with polyisobutenyl-substituted succinic anhydride, borated 10043-35-3DP, Boric acid (H3BO3), reaction products with aminoguanidine-hydrocarbyl substituted succinic acid or anhydride
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(aminoguanidine-succinic acid-based dispersants for **fluoroelastomer-compatible** crankcase and drive-train lubricating oils)
- IT **108-30-5DP**, Succinic anhydride, polyisobutenyl derivs., reaction products with aminoguanidine bicarbonate, borated
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(aminoguanidine-succinic acid-based dispersants for **fluoroelastomer-compatible** crankcase and drive-train lubricating oils)
- RN 108-30-5 HCAPLUS
- CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 9 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1995:485146 HCAPLUS
DN 122:238211

ED Entered STN: 13 Apr 1995

TI Bread crumb flavor: influence of wheat variety and breadmaking process

AU Galey, Christine; Potus, Jacques; Drapron, Roger; Poiffait, Annie; Bar, Christine; Fischer, Jacky; Giampaoli, Pierre

CS Conservatoire national des arts et metiers, Paris, 75141, Fr.

SO Sciences des Aliments (1994), 14(5), 643-53
CODEN: SCALDC; ISSN: 0240-8813

DT Journal

LA French

CC 17-11 (Food and Feed Chemistry)

AB The influence of wheat varieties and fermentation conditions (i.e. durations of initial and final fermentation, storage of the dough at +1° for 18 h) on the volatile compds. content and on the odor of bread crumb were studied in an experiment involving breads made according to 3 reference methods with the flours from two varieties of wheat (Recital and Soissons). Volatile compds. were analyzed by gas chromatog. and the odor of bread crumbs was rated by 30 subjects. Correlations were found between the compds. and the results of the sensory evaluation. The content in volatile compds. of the bread crumb and the strength of the olfactory flavor called "spicy" were affected by the **refrigeration** of doughs under controlled growth. Bread crumb made from flour of Recital variety was richer in volatile compds. than those made with the flour from Soissons variety. Hypotheses are proposed which might explain these differences.

ST bread crumb flavor wheat variety breadmaking; fermn condition bread crumb flavor; dough **refrigeration** bread crumb flavor

IT Alcohols, formation (nonpreparative)
Maillard reaction products
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(bread crumb **composition** response to wheat varieties and fermentation conditions)

IT Flavor
Odor and Odorous substances
(bread crumb flavor response to wheat variety and breadmaking process)

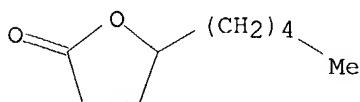
IT Dough
(volatile compds. of bread crumb response to **refrigeration** of doughs)

IT Bread
(crumb, bread crumb flavor response to wheat variety and breadmaking process)

IT 60-12-8, 2-Phenylethanol 64-17-5, Ethanol, formation (nonpreparative)
66-25-1, Hexanal 67-63-0, 2-Propanol, formation (nonpreparative)
67-64-1, Acetone, formation (nonpreparative) 71-41-0, 1-Pentanol, formation (nonpreparative) 75-07-0, Acetaldehyde, formation (nonpreparative) 78-83-1, 2-Methyl-1-propanol, formation (nonpreparative) 98-00-0, Furfuryl alcohol 98-01-1, Furfural, formation (nonpreparative) 100-51-6, Benzyl alcohol, formation (nonpreparative) 100-52-7, Benzaldehyde, formation (nonpreparative) 103-45-7 **104-61-0**, γ -Nonalactone 108-88-3, Toluene, formation (nonpreparative) 109-08-0, 2-Methylpyrazine 111-27-3, 1-Hexanol, formation (nonpreparative) 111-35-3, 3-Ethoxypropanol 111-76-2, 2-ButoxyEthanol 112-34-5, 2-(2-Butoxyethoxy)Ethanol 123-51-3, 3-Methyl-1-butanol 137-32-6, 2-Methyl-1-butanol 141-78-6, Ethyl acetate, formation (nonpreparative) 431-03-8, 2,3-Butanedione 513-86-0, 3-Hydroxy-2-Butanone 620-02-0, 5-Methylfurfural 1192-62-7, 2-Acetylfuran
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(bread crumb **composition** response to wheat varieties and fermentation

conditions)
 IT 104-61-0, γ -Nonalactone
 RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
 (bread crumb **composition** response to wheat varieties and fermentation conditions)
 RN 104-61-0 HCAPLUS
 CN 2(3H)-Furanone, dihydro-5-pentyl- (8CI, 9CI) (CA INDEX NAME)

Currently available stereo shown.



L23 ANSWER 10 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1995:459465 HCAPLUS
 DN 122:189758
 ED Entered STN: 01 Apr 1995
 TI Freon-resistant polyolefin laminates with good adhesion to polyurethane foams
 IN Kondo, Haruhiko; Masubuchi, Juko; Imaizumi, Mitsuhiro
 PA Showa Denko Kk, Japan
 SO Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM B32B027-32
 ICA C08L023-00
 CC 38-3 (Plastics Fabrication and Uses)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 06246885	A2	19940906	JP 1993-35664	19930224
PRAI	JP 1993-35664		19930224		

AB The title laminates, especially useful for inner boxes of **refrigerators**, comprise (a) a propylene polymer layer (e.g., of ethylene-propylene copolymer, polypropylene), (b) a propylene polymer **composition** layer (e.g., of talc- or CaCO₃-containing ethylene-propylene block copolymer), and (c) an ethylene copolymer **composition** layer (e.g., Tohmide-containing ethylene-maleic anhydride-Me acrylate copolymer).

ST Freon resistance polyolefin laminate **refrigerator**; ethylene propylene copolymer laminate **refrigerator**; polyurethane adhesion polyolefin laminate **refrigerator**; methyl acrylate copolymer laminate **refrigerator**

IT Ionomers
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PROC (Process); USES (Uses)
 (Freon-resistant polyolefin laminates with good adhesion to polyurethane foams)

IT Plastics, laminated
 Polyamides, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (Freon-resistant polyolefin laminates with good adhesion to polyurethane foams)

IT **Refrigerating** apparatus

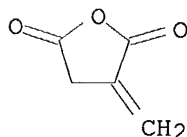
(inner boxes of; Freon-resistant polyolefin laminates with good adhesion to polyurethane foams)

- IT Alkenes, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(polymers, Freon-resistant polyolefin laminates with good adhesion to polyurethane foams)
- IT 9003-07-0, Polypropylene 9010-79-1, Ethylene-propylene copolymer
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(Freon-resistant polyolefin laminates with good adhesion to polyurethane foams)
- IT 9002-88-4, Polyethylene 25608-26-8, Ethylene-methacrylic acid copolymer sodium salt 28064-24-6, Ethylene-maleic anhydride-vinyl acetate copolymer 85967-80-2, Ethylene-maleic anhydride-methyl methacrylate copolymer 88450-35-5, Ethylene-maleic anhydride-methyl acrylate copolymer **104790-93-4** 106565-43-9, Ethylene-propylene block copolymer
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PROC (Process); USES (Uses)
(Freon-resistant polyolefin laminates with good adhesion to polyurethane foams)
- IT 471-34-1, Calcium carbonate, uses 14807-96-6, Talc, uses 61513-08-4, Tohmide 1310 90881-94-0, Tohmide 1350 151354-71-1, Tohmide 560
RL: MOA (Modifier or additive use); USES (Uses)
(Freon-resistant polyolefin laminates with good adhesion to polyurethane foams)
- IT **104790-93-4**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PROC (Process); USES (Uses)
(Freon-resistant polyolefin laminates with good adhesion to polyurethane foams)
- RN 104790-93-4 HCAPLUS
- CN Acetic acid ethenyl ester, polymer with dihydro-3-methylene-2,5-furandione and ethene (9CI) (CA INDEX NAME)

CM 1

CRN 2170-03-8

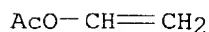
CMF C5 H4 O3



CM 2

CRN 108-05-4

CMF C4 H6 O2



CM 3

CRN 74-85-1

CMF C2 H4

 $\text{H}_2\text{C}=\text{CH}_2$

L23 ANSWER 11 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1995:227377 HCAPLUS
 DN 122:60003
 ED Entered STN: 06 Dec 1994
 TI Chlorine-free lubricating oils having modified high molecular weight succinimides
 IN Harrison, James J.; Ruhe, William R, Jr.; Morris, Jack E.; Cazin, Jacques
 PA Chevron Research and Technology Co., USA
 SO U.S., 18 pp. Cont.-in-part of U.S. Ser. No. 28,433.
 CODEN: USXXAM
 DT Patent
 LA English
 IC ICM C10M133-44
 NCL 252051500A
 CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
 FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5356552	A	19941018	US 1993-135095	19931012
	US 5334321	A	19940802	US 1993-28433	19930309
	EP 648830	A2	19950419	EP 1994-305087	19940712
	EP 648830	A3	19961120		
	R: DE, FR, GB				
	JP 07150166	A2	19950613	JP 1994-167587	19940720
	JP 2899524	B2	19990602		
	CA 2133511	AA	19950413	CA 1994-2133511	19941003
	CA 2133511	C	20010130		
PRAI	US 1993-28433	A2	19930309		
	US 1993-135095	A	19931012		
AB	Alkenyl or alkyl succinimide additives which are the reaction product of a high mol.-weight alkenyl- or alkyl-substituted succinic anhydride and a polyalkylene polyamine having an average of greater than 4 nitrogen atoms per mol, wherein the reaction product is post-treated with a cyclic carbonate, are compatible with fluoroelastomer engine seals and, for concentration levels at which fluoroelastomer seal compatibility is achieved, possess improved dispersancy and/or detergency properties when employed in chlorine-free lubricating oils.				
ST	chlorine free lubricating oil modified succinimide				
IT	Lubricating oil additives (detergents-dispersants, compatible with fluoroelastomer seals for chlorine-free lubricating oils)				
IT	108-30-5DP , Succinic anhydride, poly(iso)butenyl derivs., reaction products with polyamines and ethylene carbonate 111-40-0DP, Diethylenetriamine, reaction products with poly(iso)butenylsuccinic anhydride and ethylene carbonate 112-24-3DP, Triethylenetetramine, reaction products with poly(iso)butenylsuccinic anhydride and ethylene				

carbonate 143637-18-7DP, Polyamine HPA-X, reaction products with poly(iso)butenylsuccinic anhydride and ethylene carbonate
 RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)

(detergents-dispersants; for chlorine-free lubricating oils and compatible with **fluoroelastomer** seals)

IT 108-31-6, Maleic anhydride, reactions 9003-28-5, Parapol 1300

RL: RCT (Reactant); RACT (Reactant or reagent)

(in preparation of detergent-dispersant additives for chlorine-free lubricating oils and compatible with **fluoroelastomer** seals)

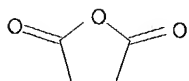
IT 108-30-5DP, Succinic anhydride, poly(iso)butenyl derivs., reaction products with polyamines and ethylene carbonate

RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)

(detergents-dispersants; for chlorine-free lubricating oils and compatible with **fluoroelastomer** seals)

RN 108-30-5 HCAPLUS

CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 12 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1995:21394 HCAPLUS

Correction of: 1992:534329

DN 122:13529

Correction of: 117:134329

ED Entered STN: 08 Nov 1994

TI Phosphorus-containing **compositions** for **refrigeration** systems

IN Jolley, Scott Ted; Lange, Richard Michael; Koch, Frederick William

PA Lubrizol Corp., USA

SO PCT Int. Appl., 54 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C10M105-00

ICS C10M105-74; C10M111-04; C10M169-04; C09K005-04

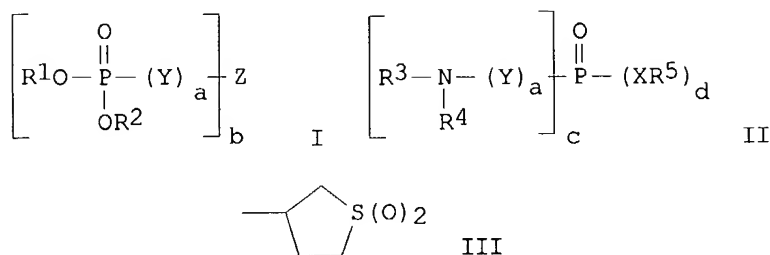
ICI C10M105-00, C10M105-32, C10M105-52, C10M105-74; C10M111-04, C10M105-52, C10M105-74, C10M107-34; C10M169-04, C10M105-52, C10M129-68, C10M137-04, C10M137-12, C10M137-14; C10N040-30

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9118073	A1	19911128	WO 1991-US3300	19910510
W: AU, CA, JP				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, NL, SE				
CA 2060201	AA	19911118	CA 1991-2060201	19910510
AU 9178831	A1	19911210	AU 1991-78831	19910510
AU 656895	B2	19950223		
EP 483331	A1	19920506	EP 1991-909908	19910510
EP 483331	B1	19950118		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				

JP 05500388	T2	19930128	JP 1991-509871	19910510
ES 2069888	T3	19950516	ES 1991-909908	19910510
US 5405546	A	19950411	US 1993-111227	19930824
PRAI US 1990-525358	A	19900517		
WO 1991-US3300	A	19910510		
US 1992-824739	B1	19920121		
OS MARPAT 122:13529				
GI				



AB The compns. contain ≥ 1 compound of I or II, where R1 and R2 are each independently hydrocarbyl or hydrocarbyloxyalkylene groups and R1 and R2 taken together have a total of 2-24 C atoms excluding any oxyalkylene C atoms; a is 0 or 1; b is 1 or 2; c is 1, 2 or 3; d is 0, 1 or 2; provided that c + d = 3. When b is 1, Z is selected from -R5, -N(H)R5, -C(X)R5, -CN, -S(O)R5, -S(O)2N(R3)(R4), and III; when b is 2, Z is -N(R5); X is O or S; Y is a C1-20 hydrocarbylene group; R5 is a C1-18 hydrocarbyl group; R3 and R4 are each independently H or a C1-24 hydrocarbyl group or taken together form a heterocyclic ring. The P-containing compns. are suitable as lubricants compatible with **fluorocarbon refrigeration** liqs. in **refrigerators** and in air conditioners including home, automobile, and industrial air conditioners. The compns. are used with a F-containing C1-2 hydrocarbon as the major component. A suitable **refrigerant** contains 1,1,1,2-tetrafluoroethane 90 wt% and the reaction product of polypropylene tetramer with dihydrogen phosphite and di-tert.-butylperoxide 10 wt%.

ST **fluorocarbon refrigerant** lubricant phosphorus compd

IT Lubricating oil additives
(for **fluorocarbon refrigerants**)

IT Alcohols, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(C10-12, ethoxylated, esters, with acetic acid; lubricant, for **fluorocarbon refrigerant**)

IT Alcohols, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(C12-13, ethoxylated, reaction products; lubricant, for **fluorocarbon refrigerant**)

IT Fatty acids, uses
RL: NUU (Other use, unclassified); USES (Uses)
(C12-14-neo-, lubricant, for **fluorocarbon refrigerant**)

IT **Refrigeration**
(agents, phosphorus-containing, for **fluorocarbon refrigerants**)

IT 9037-24-5, Amberlyst 15
RL: CAT (Catalyst use); USES (Uses)

(catalyst, for preparation of lubricant for **fluorocarbon refrigerant**)

IT 25322-68-3D, mono-Cl2-14 alkyl ethers

RL: USES (Uses)

(lubricant for **fluorocarbon refrigerant**)

IT 50-00-0D, Formaldehyde, reaction products with dibutylphosphite and sodium hydroxide and 3-sulfolene 50-70-4D, D-Glucitol, reaction products 56-81-5D, 1,2,3-Propanetriol, reaction products 64-18-6D, Formic acid, reaction products with Alfonic 1312-60 71-36-3D, 1-Butanol, reaction products 76-05-1D, reaction products with Alfonic 1312-60 76-39-1D, reaction products with Sandopan DTC 77-79-2D, reaction products with dibutylphosphite and formaldehyde 77-99-6D, reaction products 78-24-0D, reaction products 107-21-1D, 1,2-Ethanediol, reaction products 108-24-7D, reaction products with Neodol 23-6.5 **108-30-5D**, reaction products 108-31-6D, 2,5-Furandione, reaction products 110-15-6D, Butanedioic acid, esters with Neodol 23-6.5 111-46-6D, reaction products 112-70-9D, 1-Tridecanol, reaction products with cyanoacetic acid 124-04-9D, Hexanedioic acid, reaction products 126-58-9D, reaction products 149-57-5D, reaction products 334-48-5D, Decanoic acid, reaction products with 2-methyl-2-nitropropanol 372-09-8D, reaction products with tridecyl alc. 546-68-9D, reaction products 625-45-6D, esters with Neodol 23-6.5 6842-15-5D, reaction products with dihydrogen phosphite 15460-71-6D, reaction products with polypropylene 26952-21-6D, Isooctanol, reaction products 33113-10-9D, Neoheptanoic acid, reaction products 56090-54-1D, Triglycerol, reaction products 61757-59-3D, Sandopan DTC, reaction products with 2-methyl-2-nitropropanol 130164-80-6D, reaction products 130164-82-8D, reaction products 141262-20-6D, reaction products

RL: USES (Uses)

(lubricant, for **fluorocarbon refrigerant**)

IT 811-97-2 25322-69-4

RL: USES (Uses)

(**refrigerant**, lubricant for)

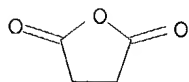
IT **108-30-5D**, reaction products

RL: USES (Uses)

(lubricant, for **fluorocarbon refrigerant**)

RN 108-30-5 HCAPLUS

CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 13 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1994:459823 HCAPLUS

DN 121:59823

ED Entered STN: 06 Aug 1994

TI **Fluoropolymer-** and compatible acrylic polymer-containing coatings

IN Watanabe, Masaharu; Mototani, Shigeo; Hirohata, Hatsuo

PA Daicel Chem, Japan; Dainichi Kemikaru Kagaku Kk

SO Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

IC ICM C09D127-12
ICS C09D133-14; C09D201-06

CC 42-10 (Coatings, Inks, and Related Products)

FAN.CNT 1

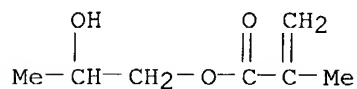
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 06025592	A2	19940201	JP 1992-207563	19920709
	JP 3287878	B2	20020604		
PRAI	JP 1992-207563		19920709		
AB	Title coating, having good soil, scratch, and weather resistance, comprise 5-95% OH-containing fluoropolymers , 5-95% C3-8 lactone-modified acrylic polymers with OH value 5-100 and weight-average mol. weight 5,000-300,000, and OH-reactive hardeners. Mixts. of 2-8:2-8 Lumiflon LF 200 and Placel FM 1-Me methacrylate-2-ethylhexyl acrylate copolymer showed complete miscibility.				
ST	fluoropolymer compatibility lactone acrylic polymer; soil resistance acrylic fluoro polyurethane; weather resistance acrylic fluoro polyurethane; scratch resistance acrylic fluoro polyurethane				
IT	Urethane polymers, preparation RL: TEM (Technical or engineered material use); USES (Uses) (acrylic, fluorine-containing, coatings, antisoiling, scratch- and weather-resistant)				
IT	Fluoropolymers RL: TEM (Technical or engineered material use); USES (Uses) (acrylic-polyurethane-, coatings, antisoiling, scratch- and weather-resistant)				
IT	Coating materials (antisoiling, scratch-resistant, hydroxy-containing fluoropolymer -, compatible lactone acrylic polymer- and hardener-containing)				
IT	Urethane polymers, preparation RL: PREP (Preparation) (fluorine-containing, acrylic, coatings, antisoiling, scratch- and weather-resistant)				
IT	Fluoropolymers RL: USES (Uses) (polyurethane-, acrylic, coatings, antisoiling, scratch- and weather-resistant)				
IT	156452-28-7	156452-29-8	156452-30-1	156452-31-2	156479-71-9 156479-72-0
	RL: TEM (Technical or engineered material use); USES (Uses) (coatings, antisoiling, scratch- and weather-resistant)				
IT	156452-24-3	156452-25-4	156452-26-5	156452-27-6	156479-69-5 156479-70-8
	RL: USES (Uses) (compatible to hydroxy-containing fluoropolymers , for coatings)				
IT	93615-58-8, Lumiflon LF 200	155076-37-2, Lumiflon LF 502			
	RL: USES (Uses) (lactone-containing acrylic polymers compatible with, for coatings)				
IT	156452-25-4 RL: USES (Uses) (compatible to hydroxy-containing fluoropolymers , for coatings)				
RN	156452-25-4	HCAPLUS			
CN	2-Propenoic acid, 2-methyl-, 2-hydroxypropyl ester, polymer with dihydro-2(3H)-furanone, 1-methylethyl 2-propenoate and methyl				

2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 923-26-2

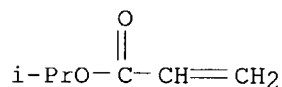
CMF C7 H12 O3



CM 2

CRN 689-12-3

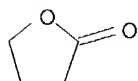
CMF C6 H10 O2



CM 3

CRN 96-48-0

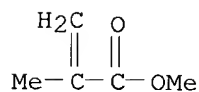
CMF C4 H6 O2



CM 4

CRN 80-62-6

CMF C5 H8 O2



L23 ANSWER 14 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1993:499412 HCAPLUS

DN 119:99412

ED Entered STN: 04 Sep 1993

TI Lubricating compositions having improved compatibility with
fluorocarbon seals

AU Anon.

CS UK

SO Research Disclosure (1993), 349, 354
 CODEN: RSDSBB; ISSN: 0374-4353

DT Journal

LA English

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
 Section cross-reference(s): 39

AB Carboxylic anhydride-containing materials are used as compatibilizing agents to counteract the deleterious effects of lubricating oil additives on elastomeric properties of seals in crankcase engines. Hydrocarbyl-substituted carboxylic acids and anhydrides, especially polyalkenylsuccinic anhydrides, and particularly polyisobutenylsuccinic anhydrides, were preferred.

ST crankcase oil elastomeric seal compatibilizing agent; hydrocarbyl substituted carboxylic anhydride compatibilizing agent; **fluoropolymer** seal lubricating oil compatibilizing agent; polyalkenylsuccinic anhydride compatibilizing agent

IT Lubricating oil additives
 (compatibilizing agents, for operation with **fluoropolymer** seals)

IT Gaskets
 Sealing compositions
 (**fluoropolymer**, compatibility of crankcase lubricating oils with, agents for)

IT **Fluoropolymers**
 RL: USES (Uses)
 (sealing materials, compatibility of crankcase lubricating oils with, agents for)

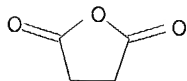
IT Lubricating oils
 (crankcase, compatibility of, with elastomeric **fluoropolymer** seals)

IT **108-30-5D**, Succinic anhydride, polyisobutenyl derivs.
 RL: USES (Uses)
 (**compatibilizing** agents, for crankcase lubricating oils with **fluoropolymer** seals)

IT **108-30-5D**, Succinic anhydride, polyisobutenyl derivs.
 RL: USES (Uses)
 (**compatibilizing** agents, for crankcase lubricating oils with **fluoropolymer** seals)

RN 108-30-5 HCAPLUS

CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 15 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1993:431361 HCAPLUS

DN 119:31361

ED Entered STN: 24 Jul 1993

TI Lubricating oil dispersants-sludge inhibitors, prepared from acylated polyolefin reaction products with amine-substituted imidazolidones, for improved compatibility with Viton seals.

IN Migdal, Cyril A.; Nalesnik, Theodore E.

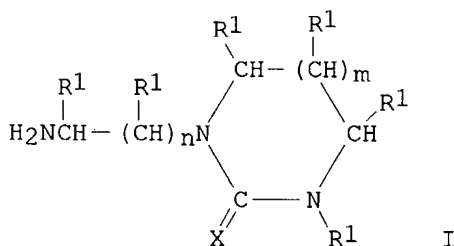
PA Texaco Inc., USA

SO U.S., 7 pp.

CODEN: USXXAM
 DT Patent
 LA English
 IC ICM C10M145-10
 NCL 252047000
 CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
 Section cross-reference(s): 39

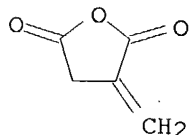
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5188745	A	19930223	US 1991-812485	19911223
	EP 549196	A1	19930630	EP 1992-311222	19921209
	EP 549196	B1	19961023		
	R: BE, DE, FR, GB, IT, NL				
PRAI	US 1991-812485		19911223		
GI					



- AB An additive to impart elastomer seal compatibility is prepared by reacting an olefin copolymer, of mol. weight 5500-500,000, containing ≥ 1 olefinic carboxylic acid acylating agent, with an amine-substituted imidazolidone compound of structure I ($R1 = h$ or branched or linear C1-24-alkyl, alkenyl, alkoxyl, aralkyl, or alkaryl; $n = 0-12$; $m = 0-3$; $X = O$ or S). The olefin copolymer is prepared from C2H4 15-80, a C3-10- α -monoolefin 20-85, and (optionally) a polyene chosen from non-conjugated dienes or trienes 0-15 mol% units. A Viton seal-compatible additive, prepared from ethylene-propylene copolymer (.apprx.80,000 number average mol. weight), containing 0.8 weight% maleic anhydride (prepared by grafting), by reaction with N-(2-aminoethyl)imidazolidone, showed high effective dispersancy properties and sludge inhibition when present at 1.20 weight% treating level.
- ST **fluororubber** seal compatibility lubricating oil; lubricating oil sludge varnish dispersant; polyolefin imidazolidone lubricating oil additive; Viton seal compatibility lubricating oil
- IT Alkenes, polymers
 RL: USES (Uses)
 (C3-10 α -, with ethylene and polyenes, acylated, reaction products with amine-substituted imidazolidones, lubricating oil dispersants-sludge inhibitors)
- IT Lubricating oil additives
 (dispersants-varnish inhibitors, acylated polyolefin reaction products with amine-substituted imidazolidones, for improved compatibility with **fluororubber** seals)
- IT Rubber, synthetic
 RL: USES (Uses)
 (hexafluoropropene-vinylidene fluoride, seal, improved lubricating oil

- compatibility with, dispersant-sludge inhibitor additives for)
- IT Alkadienes
RL: USES (Uses)
(nonconjugated, polymers, polymers with alkenes, acylated, reaction products with amine-substituted imidazolidones, lubricating oil dispersants-sludge inhibitors)
- IT Lubricating oil additives
(sludge inhibitors, acylated polyolefin reaction products with amine-substituted imidazolidones, for improved compatibility with **fluororubber** seals)
- IT Alkenes, polymers
RL: USES (Uses)
(trienic, polymers with alkenes, acylated, reaction products with amine-substituted imidazolidones, lubricating oil dispersants-sludge inhibitors)
- IT Carboxylic acids, polymers
RL: USES (Uses)
(unsatd., graft polymers with polyolefins, reaction products with amine-substituted imidazolidones, lubricating oil dispersants-sludge inhibitors)
- IT 74-85-1D, Ethylene, polymers with C3-10- α -olefins and polyenes, acylated, reaction products with amine-substituted imidazolidones
RL: USES (Uses)
(lubricating oil dispersants-sludge inhibitors)
- IT 108-31-6D, Maleic anhydride, reaction products with polyolefins and amine-substituted imidazolidone **2170-03-8D**, Itaconic anhydride, reaction products with polyolefins and amine-substituted imidazolidone 6281-42-1D, reaction products with acylated polyolefins 9010-79-1D, Ethylene-propylene copolymer, reaction products with maleic anhydride and amine-substituted imidazolidones
RL: USES (Uses)
(lubricating oil dispersants-sludge inhibitors, for improved **compatibility** with **fluororubber** seals)
- IT **2170-03-8D**, Itaconic anhydride, reaction products with polyolefins and amine-substituted imidazolidone
RL: USES (Uses)
(lubricating oil dispersants-sludge inhibitors, for improved **compatibility** with **fluororubber** seals)
- RN 2170-03-8 HCAPLUS
- CN 2,5-Furandione, dihydro-3-methylene- (9CI) (CA INDEX NAME)



L23 ANSWER 16 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1992:534329 HCAPLUS
DN 117:134329
ED Entered STN: 04 Oct 1992
TI Phosphorus-containing **compositions** for **refrigeration** systems
IN Jolley, Scott Ted; Lange, Richard Michael; Koch, Frederick William
PA Lubrizol Corp., USA

SO PCT Int. Appl., 54 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C10M105-00
 ICS C10M105-74; C10M111-04; C10M169-04; C09K005-04
 ICI C10M105-00, C10M105-32, C10M105-52, C10M105-74; C10M111-04, C10M105-52,
 C10M105-74, C10M107-34; C10M169-04, C10M105-52, C10M129-68, C10M137-04,
 C10M137-12, C10M137-14; C10N040-30
 CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
 PATENT NO. KIND DATE APPLICATION NO. DATE

 PI WO 9118073 A1 19911128 WO 1991-US3300 19910510
 W: AU, CA, JP
 RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, NL, SE
 PRAI US 1990-525358 19900517
 OS MARPAT 117:134329
 AB The compns. contain ≥ 1 compound of I or II, where R1 and R2 are each
 independently hydrocarbyl or hydrocarbyloxyalkylene groups and R1 and R2
 taken together have a total of 2-24 C atoms excluding any oxyalkylene C
 atoms; a is 0 or 1; b is 1 or 2; c is 1, 2, or 3; d is 0, 1, or 2,
 provided that $c + d = 3$. If b is 1, Z is selected from among -R5,
 -N(H)R5, -C(X)R5, -CN, -S(O)R5, -S(O)2R5, -S(O)2N(R3)(R4), and III; if b
 is 2, Z is -N(R5); X is O or S; Y is a hydrocarbylene group having 1-20 C
 atoms; R3 and R4 are each independently H or a hydrocarbyl group having
 1-24 C atoms, or R3 and R4 taken together form a heterocyclic ring. The
 P-containing compns. are suitable as lubricants compatible with liquid
fluorocarbon refrigeration liqs. in
refrigerators and in air conditioners including home, automobile,
 and industrial air conditioners. The compns. are used with a F-containing
 C1-2 hydrocarbon as the major component. A suitable **refrigerant**
 contains 1,1,1,2-tetrafluoroethane 90 weight% and the reaction product of
 polypropylene tetramer with dihydrogen phosphite and di-tert-butylperoxide
 10 weight%.

ST **fluorocarbon refrigerant** lubricant phosphorus compd;
refrigerant fluorocarbon lubricant phosphorus compd;
 lubricant **fluorocarbon refrigerant** phosphorus compd;
 phosphorus compd **fluorocarbon refrigerant** lubricants

IT Lubricating oil additives
 (for **fluorocarbon refrigerants**)

IT Alcohols, compounds
 RL: USES (Uses)
 (C10-12, ethoxylated, esters, with acetic acid, lubricant for
fluorocarbon refrigerant)

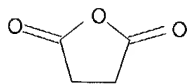
IT Alcohols, compounds
 RL: USES (Uses)
 (C12-13, ethoxylated, reaction products, lubricant for
fluorocarbon refrigerant)

IT Fatty acids, uses
 RL: USES (Uses)
 (C12-14-neo-, lubricant, for **fluorocarbon refrigerant**
)

IT **Refrigeration**
 (agents, phosphorus-containing, for **fluorocarbon**
refrigerants)

IT 9037-24-5, Amberlyst 15
 RL: CAT (Catalyst use); USES (Uses)
 (catalyst, for preparation of lubricant for **fluorocarbon**

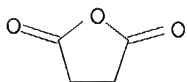
refrigerant)
 IT 25322-68-3D, mono-C12-14 alkyl ethers
 RL: USES (Uses)
 (lubricant for **fluorocarbon refrigerant**)
 IT 50-00-0D, Formaldehyde, reaction products with dibutylphosphite and sodium hydroxide and 3-sulfolene 50-70-4D, D-Glucitol, reaction products 56-81-5D, 1,2,3-Propanetriol, reaction products 64-18-6D, Formic acid, reaction products with Alfonic 1312-60 71-36-3D, 1-Butanol, reaction products 76-05-1D, Trifluoroacetic acid, reaction products with Alfonic 1412-60 76-39-1D, reaction products with Sandopan DTC 77-79-2D, reaction products with dibutylphosphite and formaldehyde 77-99-6D, reaction products 78-24-0D, reaction products 107-21-1D, 1,2-Ethanediol, reaction products 108-24-7D, reaction products with Neodol 23-6.5 **108-30-5D**, reaction products 108-31-6D, 2,5-Furandione, reaction products 110-15-6D, Butanedioic acid, esters with Neodol 23-6.5, uses 111-46-6D, reaction products 112-70-9D, 1-Tridecanol, reaction products with cyanoacetic acid 124-04-9D, Hexanedioic acid, reaction products 126-58-9D, reaction products 149-57-5D, reaction products 334-48-5D, Decanoic acid, reaction products with 2-methyl-2-nitropropanol 372-09-8D, reaction products with tridecyl alc. 546-68-9D, reaction products 625-45-6D, esters with Neodol 23-6.5 6842-15-5D, reaction products with dihydrogen phosphite 15460-71-6D, reaction products with polypropylene 26952-21-6D, Isooctanol, reaction products 33113-10-9D, Neoheptanoic acid, reaction products 56090-54-1D, Triglycerol, reaction products 61757-59-3D, Sandopan DTC, reaction products with 2-methyl-2-nitropropanol 130164-80-6D, reaction products 130164-82-8D, reaction products 141262-20-6D, reaction products
 RL: USES (Uses)
 (lubricant, for **fluorocarbon refrigerant**)
 IT 811-97-2 25322-69-4
 RL: USES (Uses)
 (**refrigerant**, lubricant for)
 IT **108-30-5D**, reaction products
 RL: USES (Uses)
 (lubricant, for **fluorocarbon refrigerant**)
 RN 108-30-5 HCAPLUS
 CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 17 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1992:217909 HCAPLUS
 DN 116:217909
 ED Entered STN: 31 May 1992
 TI Method for preparing engine seal compatible dispersant for lubricating oils comprising reacting hydrocarbyl substituted dicarboxylic compound with aminoguanidine or its basic salt
 IN Fenoglio, David J.; Vettel, Paula R.; Eggerding, David W.
 PA Amoco Corp., USA
 SO U.S., 14 pp. Cont.-in-part of U.S. 4,908,145.
 CODEN: USXXAM
 DT Patent

LA English
 IC ICM C10M133-44
 ICS C10M105-70
 NCL 252051500A
 CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5080815	A	19920114	US 1988-292414	19881230
	US 4908145	A	19900313	US 1987-103169	19870930
	CA 1333717	A1	19941227	CA 1988-578537	19880927
	ES 2031242	T3	19921201	ES 1988-309007	19880929
PRAI	US 1987-103169		19870930		
AB	A dispersant composition having improved compatibility with fluorohydrocarbon -containing elastomer engine seals comprises the reaction product of a C20-250-hydrocarbyl-substituted succinic anhydride with an aminoguanidine or its basic salt at 155-200°. A polybutenyl bis-3-amino-1,2,4-triazole dispersant was prepared by reacting polybutenylsuccinic anhydride and aminoguanidine bicarbonate.				
ST	lubricating oil engine dispersant; polybutenylsuccinic anhydride aminoguanidine carbonate dispersant				
IT	Lubricating oil additives (dispersants, polybutenylsuccinic anhydride-aminoguanidine carbonate adducts, elastomer engine seal-compatible)				
IT	108-30-5D , Succinic anhydride, polybutenyl derivs., reaction products with aminoguanidine salts 996-19-0D, reaction products with polybutenylsuccinic anhydride 2582-30-1D, reaction products with polybutenylsuccinic anhydride 10308-82-4D, Aminoguanidine nitrate, reaction products with polybutenylsuccinic anhydride RL: USES (Uses) (dispersants, for lubricating oils, with elastomer engine seal compatibility)				
IT	108-30-5D , Succinic anhydride, polybutenyl derivs., reaction products with aminoguanidine salts RL: USES (Uses) (dispersants, for lubricating oils, with elastomer engine seal compatibility)				
RN	108-30-5 HCAPLUS				
CN	2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)				



L23 ANSWER 18 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1991:104766 HCAPLUS
 DN 114:104766
 ED Entered STN: 23 Mar 1991
 TI **Refrigerant** liquids containing carboxyl esters and **fluorohydrocarbons**
 IN Jolley, Scott Ted
 PA Lubrizol Corp., USA
 SO PCT Int. Appl., 37 pp.
 CODEN: PIXXD2
 DT Patent

LA English
 IC ICM C09K005-04
 CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9012849	A1	19901101	WO 1990-US2069	19900417
	W: AU, BR, FI, JP, NO				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, IT, LU, NL, SE				
	IN 176832	A	19960921	IN 1989-DE1081	19891120
	AU 9054480	A1	19901116	AU 1990-54480	19900417
	AU 638710	B2	19930708		
	EP 422185	A1	19910417	EP 1990-906641	19900417
	EP 422185	B1	19950614		
	R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, LU, NL, SE				
	BR 9006748	A	19910806	BR 1990-6748	19900417
	JP 03505602	T2	19911205	JP 1990-506490	19900417
	ES 2034938	T3	19951016	ES 1990-906641	19900417
	JP 10251678	A2	19980922	JP 1998-68784	19900417
	CA 2015204	AA	19901025	CA 1990-2015204	19900423
	CA 2015204	C	19980210		
	ZA 9003096	A	19910227	ZA 1990-3096	19900424
	NO 9005529	A	19910214	NO 1990-5529	19901220
	JP 09111229	A2	19970428	JP 1996-235668	19960905
	JP 2895001	B2	19990524		
PRAI	US 1989-343087	A	19890425		
	JP 1990-506490	A3	19900417		
	JP 1996-235668	A3	19900417		
	WO 1990-US2069	A	19900417		
OS	MARPAT 114:104766				
AB	The title compns. comprise a major amount of a C1-2 fluorohydrocarbon and a minor amount of a carboxylate ester R(O2CR1)n [R = hydrocarbyl group; R1 = H, C8-22 (un)branched hydrocarbyl, carboxylic acid-containing hydrocarbyl residue, carboxylate ester-containing hydrocarbyl residue; n = ≥2], and these compns. do not have ozone-depleting effects (no data). Thus, a title composition comprised 90 parts 1,1,1,2-tetrafluoroethane and 10 parts ester (prepared by the esterification of 6.05 mol 2-ethylhexanoic acid and 2 mol glycerol).				
ST	fluoroalkane ester refrigerant compn manuf;				
	ozone nondepletion refrigerant liq compn				
IT	Fatty acids, esters				
	RL: USES (Uses)				
	(C12-14, Me esters, reaction products, with polyhydroxy compds., refrigerant liquid compns. containing, and fluorocarbons)				
IT	Refrigeration				
	(agents, fluorohydrocarbon -hydroxy group-containing esters, manufacture of, ozone non-depleting)				
IT	Hydrocarbons, uses and miscellaneous				
	RL: USES (Uses)				
	(fluoro, refrigeration liquid compns. containing, and hydroxy group-containing esters)				
IT	Esters, preparation				
	RL: SPN (Synthetic preparation); PREP (Preparation)				
	(hydroxy-containing, preparation and utilization of, with fluorohydrocarbons in refrigerant liquid compns.)				
IT	108-30-5D , Succinic anhydride, reaction products with ethylene glycol and primary aliphatic alcs. 108-31-6D , Maleic anhydride, reaction products with ethylene glycol and primary aliphatic alcs.				

RL: USES (Uses)

(refrigerant liquid compns. containing **fluorocarbons** and)

IT 50-70-4D, D-Glucitol, hydroxyl group-containing carboxylate esters 56-81-5D,
 1,2,3-Propanetriol, hydroxyl group-containing carboxylate esters 67-56-1D,
 Methanol, C8-10 carboxylate esters, sorbitol transesterification products
 77-99-6D, hydroxyl group-containing carboxylate esters 78-24-0D,
 Tripentaerythritol, hydroxy group-containing carboxylate esters 106-70-7D,
 Methylhexanoate, hydroxy group-containing carboxylate esters 108-24-7D,
 hydroxyl group-containing carboxylate esters 111-46-6D, hydroxy
 group-containing

carboxylate esters 111-82-0D, Methyl dodecanoate, hydroxy group-containing
 carboxylate esters 112-27-6D, Triethyleneglycol, hydroxy group-containing
 carboxylate esters 115-77-5D, hydroxy group-containing carboxylate esters
 124-10-7D, Methyltetradecanoate, hydroxy group-containing carboxylate esters
 126-58-9D, Dipentaerythritol, hydroxy group-containing carboxylate esters
 143-07-7D, Dodecanoic acid, hydroxy group-containing carboxylate esters
 149-57-5D, 2-Ethylhexanoic acid, hydroxyl group-containing carboxylate esters
 544-63-8D, Tetradecanoic acid, hydroxy group-containing carboxylate esters
 33113-10-9D, Neoheptanoic acid, hydroxy group-containing carboxylate esters
 36675-34-0D, Hexaglycerol, hydroxyl group-containing carboxylate esters
 56090-54-1D, Triglycerol, hydroxyl group-containing carboxylate esters

RL: USES (Uses)

(refrigerant liquid compns. containing, and **fluorocarbons**)

IT 811-97-2, 1,1,1,2-Tetrafluoroethane

RL: USES (Uses)

(refrigerant liquid compns. containing, ozone non-depleting)

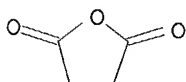
IT 108-30-5D, Succinic anhydride, reaction products with ethylene
 glycol and primary aliphatic alcs.

RL: USES (Uses)

(refrigerant liquid compns. containing **fluorocarbons** and)

RN 108-30-5 HCAPLUS

CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 19 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1991:46356 HCAPLUS

DN 114:46356

ED Entered STN: 09 Feb 1991

TI Carboxylic esters, liquid **compositions** containing them and
 methods of lubricating metal parts

IN Salomon, Mary Frisinger; Jolley, Scott Ted; Lange, Richard Michael

PA Lubrizol Corp., USA

SO PCT Int. Appl., 63 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C07F009-40

ICS C10M105-74; C09K005-04

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

FAN.CNT 1

PATENT NO.

KIND DATE

APPLICATION NO. DATE

PI	WO 9009387	A1	19900823	WO 1990-US544	19900131
	W: AU, BR, FI, JP, NO				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, IT, LU, NL, SE				
	US 5302305	A	19940412	US 1989-310146	19890209
	AU 9050865	A1	19900905	AU 1990-50865	19900131
	AU 630927	B2	19921112		
	EP 408733	A1	19910123	EP 1990-903123	19900131
	R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, LU, NL, SE				
	BR 9005183	A	19910806	BR 1990-5183	19900131
	JP 03503907	T2	19910829	JP 1990-503272	19900131
	CA 2009484	AA	19900809	CA 1990-2009484	19900207
	NO 9004287	A	19901002	NO 1990-4287	19901002
PRAI	US 1989-310146		19890209		
	WO 1990-US544		19900131		

OS MARPAT 114:46356

AB P-containing compns. and carboxylic ester compns. are described. The esters are useful as synthetic lubes and as lubricants in liquid compns. containing F-containing hydrocarbons. The liquid compns. are especially useful as **refrigeration** liqs. in **refrigerators** and air conditioners. A such liquid **composition** comprises (A) as a major amount of a F-containing C1-2 hydrocarbon, and (B) a minor amount of a lubricant comprising ≥ 1 carboxylic esters having the formula $R'ZR_{11}$ (I), $[(R3O)2P(O)(CHR10)2COO]nR$, $[(R3O2)P(O)C(CHR10COOR1)R10COO]nR$, and $[(R3O)2P(O)C(COOR1)R10CHR10COO]nR$, where R' is a hydrocarbylene group or a hydrocarbylene group substituted with $P(O)(OR3)2$ group; Z is $COOR1$, $CONR4R5$, $CO(OR6)yN(R4)COR7$, $CO(OR6)yOCOR7$, CN , CHO , or $COR7$; R is an alkylene group; $R1$ is a hydrocarbyl group or a hydrocarbyloxy hydrocarbyl group and $R1$ may be the same as $R3$, but $R3$ is independently a hydrocarbyl group; $R4$ and $R5$ are independently H or hydrocarbyl groups; $R6$ is a hydrocarbylene group; $R7$ is a hydrocarbyl group; $y = 1-20$ integer; $R10$ is independently H or hydrocarbyl group; $R11 = H$ or $COOR1$; $n = 2-6$ integer, provided that in the formula I, and ≥ 1 of Z or $R11$ is a $COOR1$ group, and when both Z and $R11$ are $COOR1$, R' is a hydrocarbylene group substituted with $P(O)(OR3)2$ group.

ST **refrigeration** liq lubricant carboxylic ester; phosphorus**compn** carboxylic ester lubricant

IT Lubricants

(phosphorus-containing carboxylic esters, for **refrigeration** liqs.)

IT Alcohols, compounds

RL: USES (Uses)

(C12-15, ethoxylated, reaction products, with maleic anhydride and triethylphosphite, lubricants, for **refrigeration** liqs.)

IT Alcohols, compounds

RL: USES (Uses)

(C12-18, reaction products, with maleic anhydride and tridecylphosphite, lubricants, for **refrigeration** liqs.)

IT Alcohols, compounds

RL: USES (Uses)

(C8-10, reaction products, with acrylic acid and triethylphosphite, lubricants, for **refrigeration** liqs.)

IT 67-63-0D, 2-Propanol, reaction products with maleic anhydride and phosphites 78-83-1D, Isobutanol, reaction products with maleic anhydride and phosphites 79-10-7D, 2-Propenoic acid, reaction products with phosphite and alcs. or amines 102-85-2D, Tributylphosphite, reaction products with maleic monoesters 104-75-6D, reaction products with maleic anhydride, ethanol, and triethylphosphite **108-30-5D**, Succinic

anhydride, propylene tetramer-substituted, Me esters 108-31-6D, Maleic anhydride, reaction products with alcs. and phosphites or amines 110-17-8D, Fumaric acid, di-Cl2-14 esters, reaction products with di-Bu hydrogen phosphite 111-17-1D, Thiodipropionic acid, reaction products with trimethylpentanol 112-90-3D, reaction products with acrylic acid and triethylphosphite 115-69-5D, 2-Amino-2-methyl-1,3-propanediol, reaction products with acrylic acid and triethylphosphite 122-52-1D, Triethyl phosphite, reaction products with maleic anhydride and alcs. or amines 301-13-3D, reaction products with maleic monoesters 762-04-9D, Diethyl phosphite, reaction products with dioctyl maleate 1331-40-4D, 2,2,4-Trimethylpentanol, reaction products with thiodipropionic acid 2915-53-9D, Dioctyl maleate, reaction products with di-Et phosphite 2929-86-4D, Tridecylphosphite, reaction products with acrylic acid and amines 25339-17-7D, Isodecyl alcohol, reaction products with maleic anhydride and phosphites

RL: USES (Uses)

(lubricants, for **refrigeration** liqs.)

IT 7723-14-0

RL: USES (Uses)

(lubricants, phosphorus-containing carboxylic esters, for **refrigeration** liqs.)

IT 811-97-2, R134a

RL: USES (Uses)

(**refrigerant**, phosphorus-containing carboxylic esters as lubricants for)

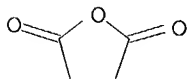
IT **108-30-5D**, Succinic anhydride, propylene tetramer-substituted, Me esters

RL: USES (Uses)

(lubricants, for **refrigeration** liqs.)

RN 108-30-5 HCAPLUS

CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 20 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1990:481480 HCAPLUS

DN 113:81480

ED Entered STN: 01 Sep 1990

TI Liquid **refrigerant compositions**

IN Grava, Arturs; Jolley, Scott T.

PA Lubrizol Corp., USA

SO PCT Int. Appl., 20 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C09K005-04

ICS C10M105-34; C10M105-36; C10M105-70

ICI C10N040-30

CC 48-5 (Unit Operations and Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	WO 9005174	A1	19900517	WO 1989-US4562	19891010

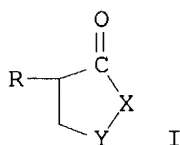
W: AU, BR, DK, FI, JP, NO
 RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE

US 4938887	A	19900703	US 1988-269894	19881110
AU 8944213	A1	19900528	AU 1989-44213	19891010
AU 624438	B2	19920611		
BR 8907156	A	19910226	BR 1989-7156	19891010
EP 416045	A1	19910313	EP 1989-911924	19891010
EP 416045	B1	19940921		

R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE

JP 03502206	T2	19910523	JP 1989-511068	19891010
CA 2002316	AA	19900510	CA 1989-2002316	19891106
US 5023007	A	19910611	US 1990-498234	19900323
NO 9002945	A	19900702	NO 1990-2945	19900702
DK 9001648	A	19900830	DK 1990-1648	19900709

PRAI US 1988-269894 19881110
 WO 1989-US4562 19891010
 OS MARPAT 113:81480
 GI



AB The **refrigerant composition** comprises (1) a major amount of a F-containing hydrocarbon, and (2) a minor amount of a soluble organic lubricant free of acetylenic and aromatic unsatn. and comprising a cyclic compound characterized by structure (I), wherein R is H, a hydrocarbyl group, or -R2COOR1, X is O or NR3, Y is CHR4, C = O, C = NR5, R1 is H or a lower hydrocarbyl group, R2 is an alkylene group, R3 is H or a hydrocarbyl group, R5 is H or an alkylene group joined with R3 when X is NR3 to form a cyclic moiety, R6 is an alkylene group, R7 is H or a hydrocarbyl group, R8 is an alkylene group, and R9 and R10 are each independently H or hydrocarbyl groups, or R9 and R10 are hydrocarbylene groups joined together to form a heterocyclic moiety, provided that when Y is CH2 and X is NR3, R3 is not a hydrocarbyl group.

ST **refrigerant compn**

IT **Refrigeration**

(agent for)

IT **96-48-0D**, Tetrahydro-2-furanone, derivs. 616-45-5D, 2-Pyrrolidinone, derivs.

RL: USES (Uses)

(**refrigeration agent**)

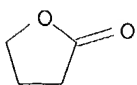
IT **96-48-0D**, Tetrahydro-2-furanone, derivs.

RL: USES (Uses)

(**refrigeration agent**)

RN 96-48-0 HCAPLUS

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



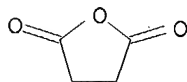
✱

L23 ANSWER 21 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1989:442683 HCAPLUS
 DN 111:42683
 ED Entered STN: 05 Aug 1989
 TI Engine seal compatible dispersant for lubricating oils
 IN Fenoglio, David John
 PA Amoco Corp., USA
 SO Eur. Pat. Appl., 22 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 IC ICM C10M133-58
 ICS C10M163-00; C10M167-00; C07D249-14
 ICI C10M163-00, C10M133-52, C10M133-58, C10M159-22, C10M159-16; C10M167-00,
 C10M133-52, C10M133-58, C10M149-02, C10M159-16; C10N030-04, C10N040-00,
 C10N060-14
 CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 310365	A1	19890405	EP 1988-309007	19880929
	EP 310365	B1	19920513		
	R: BE, DE, ES, FR, GB, IT, NL				
	US 4908145	A	19900313	US 1987-103169	19870930
	CA 1333717	A1	19941227	CA 1988-578537	19880927
	ES 2031242	T3	19921201	ES 1988-309007	19880929
PRAI	US 1987-103169		19870930		
AB	A dispersant composition having improved compatibility with fluorohydrocarbon -containing elastomer engine seals comprises the reaction product obtained by reacting a C40-250 hydrocarbyl-substituted succinic anhydride with aminoguanidine or its basic salt at 155-200°, e.g., polybutenyl bis-3-amino-1,2,4-triazole from polybutenylsuccinic anhydride and aminoguanidine bicarbonate. In several embodiments, the above dispersant can be used with a polymeric dispersant-VI improver and/or an alkaline earth phenate detergent.				
ST	lubricating oil engine seal dispersant; polybutenylsuccinic anhydride aminoguanidine bicarbonate dispersant				
IT	Lubricating oil additives (dispersants, polybutenylsuccinic anhydride-aminoguanidien salt reaction products, engine seal-compatible)				
IT	108-95-2D, Phenol, alkyl derivs., sulfurized, calcium salts, overbased RL: USES (Uses) (detergents, with triazole dispersants, engine seal-compatible, for lubricating oils)				
IT	108-95-2D, Phenol, polybutyl, Mannich reaction products with polyalkylenepolyamines and formaldehyde 111-40-0D, Diethylenetriamine, Mannich reaction products with polybutylphenol and formaldehyde 112-24-3D, Mannich reaction products with polybutylphenol and formaldehyde 112-57-2D, Tetraethylenepentamine, Mannich reaction products with polybutylphenol and formaldehyde RL: USES (Uses)				

(dispersants containing, and triazoles, engine seal-compatible, for lubricating oils)

- IT **108-30-5D**, Succinic anhydride, reaction products with butene polymers and aminoguanidine bicarbonate 996-19-0D, reaction products with polybutenylsuccinic anhydride 2582-30-1D, Aminoguanidine bicarbonate, reaction products with polybutenylsuccinic anhydride 7440-42-8D, Boron, compds., reaction products with polybutenylsuccinic anhydride and aminoguanidine salts 10308-82-4D, Aminoguanidine nitrate, reaction products with polybutenylsuccinic anhydride
RL: USES (Uses)
(dispersants, engine seal-**compatible**, for lubrication oils)
- IT 9010-79-1D, Ethylene-propylene copolymer, oxidized, reaction products with amines and formaldehyde
RL: USES (Uses)
(dispersants-viscosity improvers, with triazole dispersants, engine seal-compatible for lubricating oils)
- IT 123-56-8D, Succinimide, derivs.
RL: USES (Uses)
(engine seal-compatible, for lubricating oils)
- IT **108-30-5D**, Succinic anhydride, reaction products with butene polymers and aminoguanidine bicarbonate
RL: USES (Uses)
(dispersants, engine seal-**compatible**, for lubrication oils)
- RN 108-30-5 HCAPLUS
- CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 22 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1980:610281 HCAPLUS

DN 93:210281

ED Entered STN: 12 May 1984

TI Antiglaucoma preparation

IN Miesterneck, Helmut; Runge, Joachim; Ploss, Erich

PA Thilo, Dr., und Co. G.m.b.H., Fed. Rep. Ger.

SO Ger. Offen., 11 pp.

CODEN: GWXXBX

DT Patent

LA German

IC A61K031-415; A61K031-725

CC 63-6 (Pharmaceuticals)

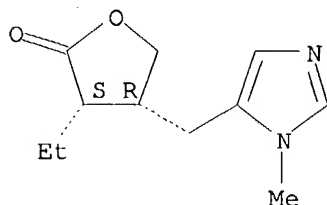
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2854279	A1	19800703	DE 1978-2854279	19781215
PRAI	DE 1978-2854279		19781215		
AB	Antiglaucoma preps. contain pilocarpine [92-13-7] or its salts and pectin [9000-69-5] as a stabilizer. A solution was prepared containing 2% (base) pilocarpine-HCl [54-71-7], 1% pectin in Sorensen phosphate buffer, pH 7.0. This solution was more stable after storage for 2, 6, and 10 mo at room temperature or in a refrigerator than a similar solution without pectin.				
ST	pilocarpine pectin compn ; glaucoma pilocarpine pectin				

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

compn
 IT **54-71-7 92-13-7 16509-56-1**
 RL: BIOL (Biological study)
 (antiglaucoma compns. containing pectin stabilizers and)
 IT 9000-69-5
 RL: BIOL (Biological study)
 (pilocarpine stabilizer, for antiglaucoma prepns.)
 IT **54-71-7 92-13-7 16509-56-1**
 RL: BIOL (Biological study)
 (antiglaucoma compns. containing pectin stabilizers and)
 RN 54-71-7 HCAPLUS
 CN 2(3H)-Furanone, 3-ethyldihydro-4-[(1-methyl-1H-imidazol-5-yl)methyl]-,
 monohydrochloride, (3S,4R)- (9CI) (CA INDEX NAME)

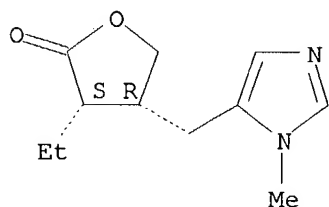
Absolute stereochemistry.



● HCl

RN 92-13-7 HCAPLUS
 CN 2(3H)-Furanone, 3-ethyldihydro-4-[(1-methyl-1H-imidazol-5-yl)methyl]-,
 (3S,4R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

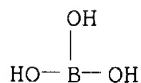


RN 16509-56-1 HCAPLUS
 CN Boric acid (H3BO3), compd. with (3S-cis)-3-ethyldihydro-4-[(1-methyl-1H-imidazol-5-yl)methyl]-2(3H)-furanone (9CI) (CA INDEX NAME)

CM 1

CRN 10043-35-3

CMF B H3 O3

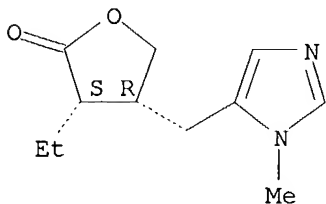


CM 2

CRN 92-13-7

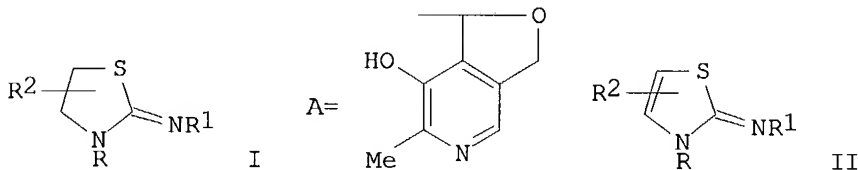
CMF C11 H16 N2 O2

Absolute stereochemistry.



L23 ANSWER 23 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1980:446648 HCAPLUS
 DN 93:46648
 ED Entered STN: 12 May 1984
 TI Derivatives of 2-iminothiazolidines and 4-thiazolines
 IN Rooney, Clarence S.; Rokach, Joshua; Cragoe, Edward J., Jr.
 PA Merck and Co., Inc., USA
 SO U.S., 11 pp.
 CODEN: USXXAM
 DT Patent
 LA English
 IC A61K031-435; C07D417-12
 NCL 548195000
 CC 28-7 (Heterocyclic Compounds (More Than One Hetero Atom))
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4180661	A	19791225	US 1978-925099	19780717
	US 4125715	A	19781114	US 1977-854668	19771125
PRAI	US 1977-854668		19771125		
GI					



AB 3-Substituted 2-iminothiazolidines were N-acylated and N-alkylated to the resp. I [R = alkyl, alkenyl, alkynyl; R1 = COR3 [R3 = aminoalkyl, (alkanoylamino)alkyl, phenyl(alkanoylamino)alkyl, carboxyalkyl, alkanoylalkyl N-(4-thiazolin-2-ylidene)- or (thiazolidin-2-ylidene)carbamoyl, pyridyl], CHR4NR5R6 (R4 = H, alkyl, Ph, alkoxyphenyl, pyridyl; R5 = H, alkyl; R6 = alkyl, alkanoyl, benzoyl; NR5R6 = succinimido, 4-thiazolin-2-ylideneamino, thiazolidin-2-ylideneamino), A; R2

= H, alkyl, CF₃], and II (R, R₁, and R₂ same as above) were prepared by the same methods; I and II are useful as indoleamine-N-Me transferase inhibitors (no data) and in the treatment of schizophrenia (no data). A mixture of 2-amino-4-(trifluoromethyl)thiazole and FSO₃Me in CH₂Cl₂ was kept in a **refrigerator** to yield II (R = Me, R₁ = H, R₂ = 4-CF₃) **fluorosulfonate**.

ST iminothiazolidine prepn schizophrenia; thiazolidine imino prepn schizophrenia; thiazoline imino prepn schizophrenia; transferase indoleaminemethyl iminothiazolidine prepn

IT Schizophrenia
(iminothiazolidines and -thiazolines for treatment of)

IT 50-00-0, reactions 75-07-0, reactions 100-52-7, reactions 120-14-9 872-85-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(condensation reaction of, with iminothiazolidine derivative)

IT 100-02-7, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(esterification of succinic acid by)

IT 110-15-6, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(esterification of, by nitrophenol)

IT 9073-61-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(inhibitors for, iminothiazolidines and -thiazolines as)

IT 63880-69-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and cyclocondensation reaction of)

IT 33109-58-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and reaction of, with iminothiazolidine derivative)

IT 63880-72-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and substitution reaction of, with ammonia)

IT 63880-70-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and N-methylation of)

IT 6149-13-9P 6558-48-1P 63880-66-0P 63880-67-1P 63880-73-9P
63880-74-0P 63880-76-2P 65400-63-7P 65400-65-9P 65400-67-1P
65400-68-2P 65400-69-3P 65400-71-7P 65400-72-8P 65400-73-9P
65400-74-0P 65400-75-1P 65400-76-2P 65400-77-3P 65400-78-4P
65400-79-5P 65400-80-8P 65400-81-9P 65400-82-0P 65400-83-1P
73316-07-1P 73316-08-2P 73316-09-3P 73316-10-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

IT 66-72-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with iminothiazolidine derivative, cyclization in)

IT 1779-81-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(ring N-alkylation of)

IT 421-20-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(ring N-alkylation of aminothiazole derivative by)

IT 75-03-6 106-94-5 106-95-6, reactions 106-96-7

RL: RCT (Reactant); RACT (Reactant or reagent)
 (ring N-alkylation of aminothiazoline by)

IT 96-50-4 349-49-5
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (ring N-methylation of)

IT 7664-41-7, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (substitution reaction of, with (methylthio)thiazoline derivative)

IT 59-67-6, reactions **108-30-5**, reactions 541-50-4, reactions
 674-82-8 2018-61-3 3304-61-8 4530-20-5
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (N-acylation of iminothiazolidine derivative by)

IT 33918-09-1
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (N-acylation of, by aminoacetic acid derivative)

IT 3732-56-7
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (N-alkylation and N-acylation reactions of)

IT 51-80-9 38792-42-6 50680-64-3
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (N-alkylation of iminothiazolidine derivative by)

IT 420-37-1
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (N-alkylation of thiazoline derivative by)

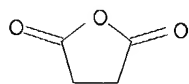
IT 75-15-0, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (N-carboxylation of ethanolamine derivative by Me iodide and)

IT 74-88-4, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (N-carboxylation of ethanolamine derivative by carbon disulfide and)

IT 63880-68-2
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (N-carboxylation of, by carbon disulfide and Me iodide)

IT **108-30-5**, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (N-acylation of iminothiazolidine derivative by)

RN 108-30-5 HCAPLUS
 CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 24 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1978:613868 HCAPLUS
 DN 89:213868
 ED Entered STN: 12 May 1984
 TI Instant pudding **composition**
 IN Kimura, Masaji
 PA Japan
 SO Jpn. Kokai Tokkyo Koho, 2 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC A23L001-187

CC 17-3 (Foods)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 53096360	A2	19780823	JP 1977-8693	19770131
PRAI	JP 1977-8693		19770131		

AB A milk pudding mixture is formulated from water-soluble casein salts, gluconolactone [90-80-2], and, optionally, dry milk; gluconolactone gradually decreases pH to the isoelec. point of milk casein and, thus, coagulates the latter to give a thick pudding with excellent texture. Thus, a mixture of Na caseinate 100, dry whole milk 10, gluconolactone 15, instant coffee 5, sucrose 3.5, carrageenan 0.5, locust bean gum 5, and coffee flavor 3 parts was dissolved in milk to 15%, poured into a mold, and **refrigerated** for 3 h to obtain a coffee-flavored pudding.

ST caseinate gluconolactone pudding

IT Puddings
(gluconolactone and sodium caseinate of)

IT Caseins, compounds
RL: BIOL (Biological study)
(sodium complexes, pudding containing gluconolactone and)

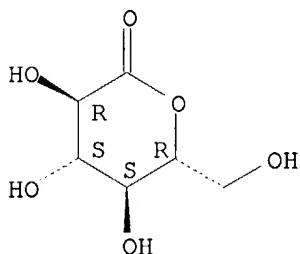
IT **90-80-2**
RL: BIOL (Biological study)
(pudding containing sodium caseinate and)

IT **90-80-2**
RL: BIOL (Biological study)
(pudding containing sodium caseinate and)

RN 90-80-2 HCAPLUS

CN D-Gluconic acid, δ -lactone (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L23 ANSWER 25 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1968:60615 HCAPLUS

DN 68:60615

ED Entered STN: 12 May 1984

TI Thermosetting and air-drying coating **compositions**

IN Vasta, Joseph A.

PA du Pont de Nemours, E. I., and Co.

SO U.S., 8 pp.
CODEN: USXXAM

DT Patent

LA English

NCL 260834000

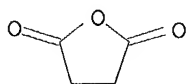
CC 42 (Coatings, Inks, and Related Products)

FAN.CNT 1

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3366706	A	19680130	US 1967-642181	19670529
PRAI	US 1967-642181		19670529		
AB	<p>Polymers having pendant CO₂H groups are prepared and esterified with a glycidyl derivative which is treated with the anhydride of a dicarboxylic acid, and the CO₂H group resulting from the anhydride is esterified with a glycidyl derivative. The pendant ester groups of the polymer provide good adhesion to a variety of substrates when the polymers are used in coating compns. The polymers are compatible with alkyd resins, urea-HCHO resins, and melamine-HCHO resin. The thermosetting coating compns. are especially useful for finishing appliances, such as refrigerators and ranges, and the finishes have excellent alkali, detergent, grease, abrasion, and stain resistance. Thus, chlorendic anhydride 87.3, styrene 183.5, acrylic acid 41.6, Cardura E 198.8, and xylene 326.8 parts were mixed and heated to 248°F. Cardura E is a mixed ester, described in U.S. patent 3,274,583, of 2,3-epoxypropanol and a tertiary carboxylic acid. The mixture prepared above was treated with 2.0 parts di-tert-Bu peroxide in 5.0 parts xylene, allowed to stand without addnl. heating for 2 hrs., refluxed for 2 hrs., treated with a 2nd identical peroxide solution, refluxed for 2 hrs., and cooled to room temperature. The resulting solution had solids content 60%, Gardner-Holdt viscosity Y-21, and acid number 3. To prepare a thermosetting paint, this polymer solution (85 parts) was mixed with 67 parts urea-HCHO resin (60% solids solution in BuOH), 15 parts xylene, and 150 parts of a pigment dispersion prepared by mixing rutile TiO₂ pigment 600, xylene 300, and the polymer solution prepared above (60% solids) 100 parts and grinding the mixture to 0.3 mil fineness. The paint was reduced to 20-5% solids with xylene, sprayed on primed and unprimed steel plates, and baked 30 min. at 300°F. Each of the finishes had excellent resistance to solvents such as MeCOEt and was scratch resistant, i.e., a 2H pencil did not damage or mar the finish. Polymers are also prepared from phthalic anhydride, Me methacrylate (I), methacrylic acid (II), and Cardura E, from succinic anhydride, styrene, I, Et acrylate, II, and Cardura E, from tetrabromophthalic anhydride (or maleic anhydride), styrene, acrylic acid, and Cardura E, from I, II, a soya oil fatty acid glycidyl ester, and phthalic anhydride, and from acrylic acid, tetrahydrophthalic acid, styrene, and Cardura E. These polymers were used alone, with urea-HCHO resins, or with melamine-HCHO resins to prepare coating compns.</p>				
ST	PHENOLIC EPOXY COATINGS; EPOXY PHENOLIC COATINGS; POLYETHER COATINGS; COATINGS POLYETHER				
IT	Coating materials (from dicarboxylic anhydride polymers with Cardura E and vinyl compds.)				
IT	Maleic anhydride RL: USES (Uses) (polymers with Cardura E and vinyl compds., for coatings)				
IT	Acrylic acid Acrylic acid ethyl ester Methacrylic acid, uses and miscellaneous Methacrylic acid methyl ester, uses and miscellaneous Styrene, uses and miscellaneous RL: USES (Uses) (polymers with anhydrides of dicarboxylic acids and Cardura E, for coatings)				
IT	Cardura E RL: USES (Uses) (polymers with anhydrides of dicarboxylic acids and vinyl compds., for coatings)				

IT **108-30-5**
 RL: USES (Uses)
 (for coatings)
 IT 88-98-2 115-27-5 632-79-1
 RL: USES (Uses)
 (polymer with Cardura E and vinyl compds., for coatings)
 IT 85-44-9
 RL: USES (Uses)
 (polymers with Cardura E and vinyl compds., for coatings)
 IT **108-30-5**
 RL: USES (Uses)
 (for coatings)
 RN 108-30-5 HCAPLUS
 CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 26 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1966:448429 HCAPLUS
 DN 65:48429
 OREF 65:9103c-g
 ED Entered STN: 22 Apr 2001
 TI Soluble reactive compounds prepared from soluble amine polymers
 IN Clark, R. C.; Sutton, D. A.
 PA Gelatine and Glue Research Assocn.
 SO 18 pp.
 DT Patent
 LA Unavailable
 CC 48 (Plastics Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	BE 653465		19650118	BE	
	FR 1422903			FR	
PRAI	GB		19630924		

AB Soluble amine polymers containing >2 amino groups/mol. are modified with bifunctional reactants to form soluble reactive compds. Stability of the soluble reactive compds. is achieved by using monofunctional reactants, such as sulfonyl chlorides, PhCNS, 2,4-dinitro-1-**fluorobenzene**, acid anhydrides, and other reagents which react with amino groups. The bifunctional reaction usually precedes the monofunctional and both are carried out at a low concentration and are controlled by temperature and pH.

The final products are made by reaction of the soluble reactive compds. with soluble amine polymer, with insol. amine polymers, such as animal hair or hides, or other materials. Printing ink, adhesives, sutures, photographic materials, and microcapsules are some of the products possible with this process. Thus, 1000 g. of acid gelatin of pork skin is dissolved in 18 l. H₂O at 40°. The gelatin contains an equivalent of α- and ε-amino and imidazole groups, having a viscosity of 8.2 centistokes at 6.66% concentration by weight in H₂O and a Bloom coefficient of 286 at the

same concentration To the mixture is added 125 g. Na salt of 2,4-dichloro-6-(p-sulfoanilino)-s-triazine in 500 ml. H₂O as a fine paste. The pH of the new mixture is adjusted to 9.0 in 15 min. with aqueous NaOH then held at that pH

for 10 min. During this time the mixture is stirred constantly and held at 40°. The pH is raised to 9.5 as before and 83 g. PhSO₂Cl is added as a fine jet. The pH is held at 9.5 for 15 min., then lowered to 6.9 with dilute HCl. The gel which forms by **refrigerating** is cut into small pieces and washed with H₂O until free of chloride and then the volume is reduced to 10 l. by evaporation The gel is dried in air at ambient temperature

and ground. The active soluble compound has a viscosity of 7.8 and a Bloom coefficient of 133 at 6.66% concentration by weight in H₂O. An aqueous solution of 10% by weight

of equal amts. of the initial gelatin and the active soluble compound gels insol. in 30 min. at pH 9.0 and 60°. A dilute solution of the active soluble compound clouds at pH 5.1 and 40°; at pH 4.4 a precipitate is noted which becomes a paste rich in protein which can be measured quant. and which dissolves in H₂O when the pH is >5.1. A mixture of 20 g. active soluble compound, 500 ml. H₂O at 40°, and 100 g. peanut oil is prepared in a blender. The particle size is 0.5-3 µ. The mixture is diluted to a total volume of 1.7 l., heated to 65°, agitated continuously, and N AcOH added dropwise. At pH 4.75 a conglomerate forms with particle size 10-30 µ and at 15° a gel forms. To this gel is added 1 ml. of a neutral solution of ethylenediamine and the pH is raised to 10.0 with aqueous NaOH, with continuous agitation, then held at that pH for 15 min. The pH is then lowered to 7.0 with dil HCl. The result is microcapsules which are hardened for 2 hrs. at 60°.

IT Capsules

(gelatin modified by bifunctional triazine compds. and monofunctional compds. for micro-)

IT Amines

(reaction products of, with triazine derivs. and then monofunctional compds.)

IT Casein, Caseinogen

Collagen

Gelatin

Proteins

Zein

(reaction products with bifunctional triazine compds. and then with monofunctional compds., soluble)

IT Peptides

(reaction products with bifunctional triazine compds., reaction products with monofunctional compds., soluble)

IT Anhydrides

Sulfonyl chlorides

(reaction products with peptides modified by bifunctional triazine compds.)

IT Albumins

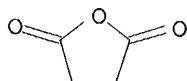
(reaction products, with bifunctional triazine compds. and then with monofunctional compds., soluble)

IT Acetic anhydride, polymer with acrylic acid and 2-aminothiazole

(reaction products with peptides modified by bifunctional triazine compds.)

IT 85-46-1, 1-Naphthalenesulfonyl chloride 93-11-8, 2-Naphthalenesulfonyl chloride 98-09-9, Benzenesulfonyl chloride 98-59-9, p-Toluenesulfonyl chloride 98-88-4, Benzoyl chloride 103-71-9, Isocyanic acid, phenyl

ester **108-30-5**, Succinic anhydride 112-16-3, Lauroyl chloride
 124-63-0, Methanesulfonyl chloride 3764-01-0, Pyrimidine,
 2,4,6-trichloro- 4156-21-2, Sulfanilic acid, N-(4,6-dichloro-s-triazin-2-
 yl)-, sodium salt 4398-46-3, 1-Naphthalenesulfonic acid,
 5-[(4,6-dichloro-s-triazin-2-yl)amino]-, sodium salt 13436-79-8,
 Ethanol, 2,2'-[(4,6-dichloro-s-triazin-2-yl)imino]di-
 (amine polymers modified by)
 IT 70-34-8, Benzene, 1-**fluoro**-2,4-dinitro-
 (reaction product with peptides modified by bifunctional triazine
 compds.)
 IT 85-44-9, Phthalic anhydride
 (reaction products with peptides modified by bifunctional triazine
 compds.)
 IT **108-30-5**, Succinic anhydride
 (amine polymers modified by)
 RN 108-30-5 HCAPLUS
 CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 27 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1965:15269 HCAPLUS
 DN 62:15269
 OREF 62:2755g-h,2756a-h,2757a-h
 ED Entered STN: 22 Apr 2001
 TI Constituents of Boenninghausenia albiflora var japonica. I. Structure of
 matzukaze lactone
 AU Miyazaki, Toshio; Mihashi, Susumu
 CS Tokyo Coll. Pharm.
 SO Chemical & Pharmaceutical Bulletin (1964), 12(10), 1232-5
 CODEN: CPBTAL; ISSN: 0009-2363
 DT Journal
 LA English
 CC 37 (Heterocyclic Compounds (One Hetero Atom))
 GI For diagram(s), see printed CA Issue.
 AB The presence has been reported of 0.0006% dictamnine and 0.0015% bergapten
 in the air-dried leaves and stems of B. albiflora. From the MeOH extract of
 the leaves of B. albiflora was isolated a new constituent, which was
 termed matsukaze lactone (I) on the basis of evidence that it contained 2
 lactone groups. The structure of I was elucidated. Air-dried pulverized
 leaves (2.45 kg.) of B. albiflora were extracted with 15 l. MeOH 1 month at
 room temperature, the extraction repeated 3 times, the combined exts.
 concentrated to small
 volume (.apprx.1 l.) and kept several weeks, the precipitate which separated
 filtered
 off, washed repeatedly with Et2O, combined with precipitate obtained by
 concentrating
 the mother liquor and washings, and extracted with a large volume boiling
 Me2CO,
 the extract filtered, concentrated to small volume, and allowed to stand, the
 precipitate
 filtered off and dissolved in CHCl3, and the solution filtered and passed
 through a column of Al2O3 to give from the CHCl3 eluates 7.40 g. I,

C20H14O6, m. 267-8° (Me2CO), [α 20D 0° (c 2.2, CHCl3), λ (EtOH) 220, 257, and 326 m μ (log ϵ 4.37, 4.02, and 4.44), λ (0.1N NaOH-EtOH) 221 and 337 m μ (log ϵ 4.48 and 4.13), ν (KBr) 1724 (coumarin carbonyl), 1605, 1566, 1500, 831, 820 (aromatic ring), 1374, 1250, 1100 cm.-1 (me- thoxyl), containing 2 MeO groups; no I was obtained from the stems of the plant by the above extraction Hydrolytic titration of I (solution in 0.5N EtOH-KOH by warming, dilution with H2O, and titration with 0.1N HCl with phenolphthalein as indicator) indicated the presence of 2 lactone groups. To 2.00 g. I in 300 ml. Me2CO and 85 ml. H2O was added a 15-ml. portion MeOH-KOH solution (20 g. KOH dissolved in MeOH to make 300 ml. solution), the solution refluxed 20 min.,

43.3

g. Me2SO4 and the remaining MeOH-KOH added alternately during 3 hrs. while refluxing and stirring, followed by concentrated aqueous solution of 10 g. KOH, and the solution refluxed further, filtered, concentrated to small volume, acidified with HCl

under ice cooling, and **refrigerated** overnight to give 2.40 g. tetramethoxy diacid (II), C22H22O8, m. 217-18° (decomposition) (MeOH), neutralization equivalent 212, λ (EtOH) 229 and 263 m μ (log ϵ 4.44 and 4.47), ν (KBr) 1690-1680 cm.-1 (α,β -unsatd. carbonyl); these results pointed to a cinnamic acid derivative II methylated with Et2O-CH2N2 gave after chromatography on Al2O3 di-Me ester, C24H26O8, m. 131-2° (70% EtOH), ν (KBr) 1719 cm.-1 (ester carbonyl). To 2.40 g. II in 24 ml. 10% aqueous Na2CO3 was added dropwise during 4 hrs. 5.4 g. KMnO4 in 192 ml. H2O at room temperature with stirring,

the

mixture stirred 1 hr., the precipitate (A) filtered off and washed with H2O,

and

the combined filtrate and washings acidified with HCl to give 0.78 g. dibasic aromatic acid (III), C18H18O8, m. 223-4° (decomposition) (MeOH), neutralization equivalent 180.2, λ (EtOH) 226 and 285 m μ (log ϵ 4.47 and 3.85), ν (KBr) 1662 cm.-1 (carboxyl conjugated with aromatic ring); precipitate A extracted repeatedly with hot Me2CO, the

combined

exts. evaporated, the oily residue chromatographed on Al2O3 with CHCl3, and the resulting oil treated with a small amount MeOH gave 160 mg. aromatic dialdehyde (IV), C18H18O6, m. 136-6.5° (EtOH), λ (EtOH) 240 and 276 m μ (log ϵ 4.45 and 4.43), ν (KBr) 1670 cm.-1

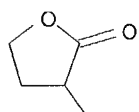
(conjugated carbonyl), reacting easily with m-O2NC6H4NHNH2 to give a crude product, m. .apprx.195°, which could not be purified. To 50 mg. IV suspended in 1.5 ml. H2O was added dropwise during 1.5 hrs. 32 mg. KMnO4 in 0.65 ml. H2O at 70° with stirring, followed by 1 ml. 10% aqueous NaOH, the precipitate filtered off and washed 3 times with hot H2O, and the combined filtrate and washings acidified and **refrigerated** to give 14.4 mg. III, m. 222° (decomposition) (MeOH), identical (mixed m.p. and ir spectrum) with III obtained above. Methylation of 100 mg. III with Et2O-CH2N2 gave 98 mg. di-Me ester (IVa), C20H22O8, m. 161-3.5° (50% EtOH), ν (KBr) 1702 cm.-1 (ester carbonyl). III (100 mg.), 3 ml. quinoline, and 30 mg. Cu powder refluxed 4 hrs., the mixture cooled, diluted with Et2O, and filtered, the filtrate added dropwise to 4 ml. concentrated HCl and 6 ml. H2O with stirring and cooling, the layers separated, the aqueous

layer

extracted with Et2O, the combined Et2O solns. washed 3 times with 5% H2SO4, dried, and evaporated, and the oily residue chromatographed on Al2O3 with CHCl3 gave 32 mg. tetramethoxybiphenyl (V), m. 107.5-8.0° (EtOH), λ (EtOH) 221.5, 248, and 280 m μ (log ϵ 4.31, 3.91, and 3.79), ν (KBr) 1617, 1594, 1517, 822, 782, 728 (aromatic ring), 1248,

1174, 1110, 1030 cm.⁻¹ (methoxyl), identified (mixed m.p. and ir and uv spectra) as 2,2',4,6'-tetramethoxybiphenyl which was synthesized from 2,1,3- and 4,1,3-I(MeO)2C6H3 [Wachtmeister, (CA 49,14729f)]. From these results, structures VI, VIa, and VIb were proposed for I.

- IT Boenninghausenia albiflora
(constituents of)
- IT Nuclear magnetic resonance
(of benzofuran **fluoro** derivs.)
- IT Spectra, visible and ultraviolet
(of **fluoro** benzofuran derivs.)
- IT Matsukaze lactone
Matsukaze lactone
(structure of)
- IT 3153-73-9, 6,8'-Bicoumarin, 7,7'-dimethoxy-
(as structure of matsukaze lactone)
- IT 100-00-5, Benzene, 1-chloro-4-nitro-
(polarography of, in Li nitrate ammoniate)
- IT 489-33-8, Flavone, 3,4',5,7-tetrahydroxy-3',8-dimethoxy- 549-10-0,
Flavone, 3,4',5,7-tetrahydroxy-3',6,8-trimethoxy- 2192-55-4, Ethanol,
2-(pentafluorophenoxy)- **2983-20-2**, Decanoic acid,
2-(2-hydroxyethyl)-, γ-lactone 3153-72-8, Biphenyl,
2,2',4,4'-tetramethoxy- 3153-74-0, Acetophenone, 3'-iodo-2',4'-dimethoxy-
3153-75-1, Acetophenone, 5'-iodo-2',4'-dimethoxy- 3153-76-2, Benzoic
acid, 3-iodo-2,4-dimethoxy- 3153-77-3, Benzoic acid,
5-iodo-2,4-dimethoxy- 3153-78-4, Benzoic acid, 3-iodo-2,4-dimethoxy-,
methyl ester 3153-79-5, Benzoic acid, 5-iodo-2,4-dimethoxy-, methyl
ester 3153-83-1, Flavone, 3,4',5,7-tetrahydroxy-3',6-dimethoxy-
3327-58-0, 3,3'-Biphenyldicarboxylic acid, 2,4',6,6'-tetramethoxy-,
dimethyl ester 3327-59-1, 3,3'-Biphenyldicarboxylic acid,
4,4',6,6'-tetramethoxy-, dimethyl ester 70388-52-2, 3,3'-
Biphenyldicarboxylic acid, 2,2',6,6'-tetramethoxy-, dimethyl ester
(preparation of)
- IT **2983-20-2**, Decanoic acid, 2-(2-hydroxyethyl)-, γ-lactone
(preparation of)
- RN 2983-20-2 HCAPLUS
- CN 2(3H)-Furanone, dihydro-3-octyl- (8CI, 9CI) (CA INDEX NAME)



(CH₂)₇-Me

L23 ANSWER 28 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1963:66251 HCAPLUS

DN 58:66251

OREF 58:11265g-h,11266a-h,11267a-f

ED Entered STN: 22 Apr 2001

TI Reaction of diazomethane with double bonds. I. Direct methylation of
trisubstituted ethylenes

AU Alguero, M.; Bosch, J.; Castaner, J.; Castella, J.; Castells, J.; Mestres,
R.; Pascual, J.; Serratosa, F.

CS Univ. Barcelona, Spain

SO Tetrahedron (1962), 18, 1381-94
CODEN: TETRAB; ISSN: 0040-4020

DT Journal

LA Unavailable

CC 35 (Noncondensed Aromatic Compounds)

GI For diagram(s), see printed CA Issue.

AB cf. CA 57, 12455d. Treatment of γ -benzylidene- α -carboxybutenolide (I, R = CO₂H, (R' = H) (4.0 g.) in 15 ml. Et₂O at 20° with 2.2-2.4 moles CH₂N₂ in Et₂O and the product recrystd. from Et₂O (or EtOAc) gave 3.8 g. γ -benzylidene- α -carbomethoxy-methylbutenolide (II, R = CO₂Me, R' = H) (III), m. 156-8°, μ , 1786, 1726 cm.⁻¹ (CCl₄), λ 202, 227 m μ (ϵ 14,500, 7180), also produced (0.3 g.) by treatment of I (R = CO₂Me, R' = H) (0.3 g.) in Et₂O with 1.2-1.4 moles CH₂N₂ in Et₂O. Similarly were prepared II (R, R' and m.p. given): CN, H, 187-90°; CO₂Me, Me, m. 154-7°; CO₂Me, Cl, 175.0-7.5°; CO₂Me, NO₂, 166-72° (decomposition). I (R = R' = H) (0.2 g.) treated with excess CH₂N₂ in Et₂O gave unchanged starting material. III (7.23 g.) heated 10 hrs. (N atmospheric) in 200 ml. dioxane and 80 ml. concentrated HCl and the washed (alc., H₂O) precipitate recrystd.

from dioxane gave 5.22 g. II (R = CO₂H, R' = H) (IV), m. 190-2° (decomposition), ν 1757, 1724 cm.⁻¹ (CHCl₃), λ 202, 231, 344 m μ (ϵ 11,300, 7800, 26,400). IV (196 mg.) and 0.2 ml. concentrated HCl refluxed 13 hrs. in 12 ml. MeOH and treated with EtOAc, the filtered solution washed with 2N aqueous K₂CO₃ and H₂O, percolated through an Al₂O₃ column and the eluate evaporated gave III, also obtained by methylation of IV with ethereal CH₂N₂. The acids II (R = CO₂H, R' = Me, Cl), m. 202-10° (decomposition), λ 204, 233, 351 m μ (ϵ 16,700, 10,130, 37,900), and m. 208-18° (decomposition), λ 202, 234, 342-3 m μ (ϵ 12,330, 12,500, 32,700), were similarly prepared IV (2.0 g.) heated in vacuo at 250° and the product distilled at 210°/18 mm. gave 0.8 g. solid, recrystd. from Et₂O to give II (R = R' = H) (V), m. 101-3°, ν 1786, 1387 cm.⁻¹ (CCl₄), λ 226, 240, 324 m μ (ϵ 9150, 7960, 20,490). V (1.0 g.) in 20 ml. 40% HI and 20 ml. AcOH heated 6 hrs. at 160° in a sealed tube and the cooled mixture diluted with H₂O, treated with a few drops of aqueous NaHSO₃ and extracted repeatedly with Et₂O, the Et₂O shaken with aqueous Na₂CO₃ and the alkaline solution

acidified with 2N HCl, the acid solution extracted with Et₂O and the residue on evaporation recrystd. from petr. ether gave 0.96 g. PhCH₂COCHMeCH₂CO₂H (VI), m. 62-3°; semicarbazone m. 171-3° (decomposition). VI Me ester (1.3 g.) and 0.28 g. NaH refluxed 6 hrs. in 20 ml. Et₂O and the mixture diluted with 40 ml. Et₂O, acidified, and the H₂O-washed solution evaporated

gave 0.6 g. 4-methyl-2-phenyl-cyclopentane-1,3-dione, m. 181-3°. PhCH₂COCHMeCO₂Et (10.0 g.) in 35 ml. C₆H₆ treated with NaOEt (from 1.15 g. Na in 15 ml. alc.) and the C₆H₆ distilled, the mixture refluxed 9 hrs. with 8.25 g. BrCH₂CO-2Et in 10 ml. C₆H₆ and acidified with 2N H₂SO₄, the C₆H₆ layer washed with 0.5M aqueous NaHCO₃ and H₂O and distilled in a high vacuum gave 6.2 g. oil, b_{0.1} 131-2° n_{22D} 1.4960. This oily PhCH₂COCMe(CO₂Et)CH₂CO₂Et (8.18 g.) shaken 24 hrs. with 8.18 ml. 10% KOH in dioxane, the mixture washed with Et₂O and acidified with 2N HCl, extracted with Et₂O and the residue on evaporation recrystd. from 1:3 Et₂O-petr. ether gave VI. VI (0.44 g.) and 2.9 g. KOH in 2.5 ml. 80% N₂H₄.H₂O and 5 ml. (HOCH₂CH₂)₂O refluxed 1 hr. and the mixture slowly distilled to 175° inner temperature, the residual mixture refluxed 7 hrs. and diluted with H₂O, washed

with Et₂O and the aqueous solution acidified with 6NHCl, extracted with Et₂O and the

H₂O-washed and dried extract evaporated, the residue (0.34 g.) chromatographed in

C6H6 over silica gel and eluted with 20: 1 C6H6Et2O gave 0.34 g. oily PhCH2CH2CHMeCH2-CO2H, b0.6 210°; anilide m. 109-111° p-toluide m. 107-8°. EtMgBr (from 2.43 g. Mg) in 80 ml. Et2O stirred (N atmospheric) with dropwise addition of 11.2 g. PhC.tplbond.CH in 20 ml.

dry C6H6 and the mixture refluxed 2 hrs., treated dropwise at 20° with 12.7 g. N-acetylpiperidine (VIa) in 50 ml. dry C6H6 and stirred 17 hrs., treated at 0° (ice bath) with 200 ml. 2N H2SO4 and shaken 24 hrs., extracted 3 times with 100 ml. Et2O and the extract washed with 0.6M aqueous

NaHCO3 and H2O, evaporated and the residue distilled gave 1.96 g. VIa, b0.8 67-70° and 1.20 g. PhC.tplbond.CAc (VII), b0.8 75-6° μ , 2208, 1681 cm.-1 (CCl4), λ 212,216, 236,259,270, 283 m μ (ϵ 12,520, 13,500, 7100, 13,250, 17,450, 13,550, C6H12). PhC.tplbond.CMgBr (from 12.0 g. PhC.tplbond.CH) at 0° in C6H6-Et2O stirred with dropwise addition of 6.16 g. freshly distilled AcH in 40 ml. dry C6H6 and the mixture stirred 17 hrs. at 20° refluxed 30 min. and hydrolyzed with 100 ml. 2N H2SO4, the products extracted and the residue on removal of solvents distilled gave 2.37 g. PhC.tplbond.CH, b20 45° and 11.13 g. PhC.tplbond.CCHMeOH, b20 140-1° n21D 1.5634, μ 3333, 2237, 2208 cm.-1 (neat). The alc. stirred at -15° in 33.5 ml. Et2O and treated dropwise below 25° with 7.67 g. Na2Cr2O7.2H2O and 5.76 ml. concentrated H2SO4 in H2O (total volume 38.5 ml.) and the mixture stirred 4 hrs. at

20°, the Et2O layer and the Et2O washings combined and washed with aqueous NaHCO3 and H2O, the dried extract evaporated and the residue distilled, the

impure VII (7.78 g., b0.15 61-5°) shaken 17 hrs. with 16 g. 45% aqueous NaHSO3 and the precipitate washed with Et2O, the dried material (5.02 g.) hydrolyzed with 35 ml. saturated aqueous Na2CO3 and the aqueous solution extracted with Et2O

gave 2.48 g. VII, b0.01 44-5°. PhC.tplbond.CH (10.2 g.), 21.1 g. MeC(OEt)3, and 1.0 g. freshly fused ZnCl2 heated slowly (8 hrs.) to 180° with loss of 4.6 g. EtOH, the mixture poured into H2O and extracted with Et2O, the residue on evaporation distilled, and the fraction (9.21 g.,

b0.01 61-3°) sublimed at 75°/0.01 mm. gave 6.77 g. VII diethyl ketal, b0.01 60° shaken with 55 ml. 30% aqueous tartaric acid 7 days at 20°, extracted with Et2O, and the ketone distilled to yield 3.75 g. pure VII, b0.01 43°. VII (1.0 g.) and 2.9 g. Ph3P:CHCO2Me refluxed 24 hrs. in 47 ml. C6H6 and the C6H6 evaporated in vacuo, the residue taken up in Et2O and the crystalline Ph3PO filtered off, the filtrate evaporated and the residue extracted with hot pert. ether, the solution **refrigerated** and filtered from Ph3PO, the filtrate evaporated and the residue distilled gave

0.92 g. of a mixture of geometrical isomers of PhC.tplbond.CCMe:CHCO2Me, b0.01 82-4°, λ 220, 240, 251, 297 m μ (ϵ 15,900, 9150, 9750, 16,600), ν 2208, 1724, 1613 cm.-1 (CCl4). The mixture (2.0 g.) in 16 ml. dioxane shaken 2 hrs. in 24 ml. 0.5N NaOH and kept 16 hrs., washed 4 times with 15 ml. Et2O and acidified with 23 ml. 2N HCl, extracted with Et2O and the oily mixed acids (1.85 g.) taken up in 10 ml. MeOH, treated with 4 drops of 1% aqueous AgNO3 and kept 1.5 hrs. at 20° evaporated and the residue taken up in Et2O, washed with 0.5M aqueous NaHCO3, and the dried Et2O solution evaporated gave 0.82 g. yellow crystalline V. The alkaline washings acidified

and extracted with Et2O, the solid (0.75 g., m. 67-129°) chromatographed in C6H6 over silica gel and eluted with C6H6-Et2O gave 0.27 g. trans-PhC.tplbond.CCMe:CHCO2H, m. 131-3°, λ 202,

220, 291-2 μ (ϵ 20,100, 13,200, 22,200), μ 2215, 1689 cm^{-1} (C2Cl4), 0.36 g. V, and 0.10 g. mixture. An attempted synthesis of 1-methyl-3-phenylpropargylidenemalonic acid (for further cyclization to α -carboxy- β -methylbutenolide) by condensation of VII and $\text{H}_2\text{C}(\text{CO}_2\text{H})_2$ gave a neg. result. VII (0.38 g.), 0.67 g. $\text{NCCH}_2\text{CO}_2\text{H}$, and 2 ml. AcOH heated (N atmospheric) 82 hrs. at 100° and diluted with 3 ml. H_2O and 3 ml. petr. ether, filtered, and the washed residue recrystd. from C_6H_6 gave 0.15 g. II ($\text{R} = \text{CN}$, $\text{R}' = \text{H}$), hydrolyzed (0.10 g.) by heating 3 hrs. at 100° in 2.5 ml. AcOH and 3 ml. 60% H_2SO_4 to IV. The β -methylbutenolide structure of the compds. I and II was also established by a study of their hydrogenated derivs. (VIII). IV (200 mg.) in 33 ml. absolute alc. and 2 ml. H_2O containing 75 mg. KOH hydrogenated at $14^\circ/752$ mm. with 33 mg. PtO_2 and adsorption of 2.08 moles H, the mixture treated with 0.27 ml. 2N HCl and the filtered solution evaporated in vacuo, the residue taken up in 30 ml. H_2O , acidified with 2N HCl, extracted with 1:10 CHCl_3 - H_2O , and the oily product rubbed with Et_2O gave 90 mg. VIII ($\text{R} = \text{CO}_2\text{H}$) (IX), m. $123-7^\circ$, ν 1783, 1721 cm^{-1} ($\text{CH}-\text{Cl}_3$). The Et_2O solution extracted with aqueous NaHCO_3 and the alkaline extract acidified, extracted with Et_2O , and the sirupy product chromatographed over silica gel yielded 40% stereoisomeric mixture of acids. III (2.0 g.) in 75 ml. alc. hydrogenated over 0.1 g. PtO_2 and the filtered solution evaporated gave a colorless, fluid resin VIII ($\text{R} = \text{CO}_2\text{H}$), b0.01 140° , refluxed (2.0 g.) with 2.0 g. KOH in 20 ml. alc. 1 hr. and the cooled mixture filtered, the K salt taken up in H_2O and acidified with 22N HCl to yield 0.9 g. IX. IX (2.0 g.) heated 30 min. at 140° in vacuo and the residue distilled gave 0.8 g. VIII ($\text{R} = \text{H}$) (X), b0.75 130° , ν 1779 cm^{-1} V (1.0 g.) in 50 ml. alc. hydrogenated over 60 mg. PrO_2 and the filtered solution evaporated gave a colorless oil, b0.75 130° , possibly isomeric with X or a mixture X (2.0 g.), 40 ml. 40% HI, and 40 ml. AcOH heated 6 hrs. at 160° in a sealed tube and the cooled product diluted with H_2O , treated with aqueous NaHSO_3 and diluted with Et_2O , the dried Et_2O evaporated, and the oily product distilled yielded $\text{PhCH}_2\text{CH}_2\text{-CHMeCH}_2\text{CO}_2\text{H}$, b0.6 210° ; anilide m. $109-11^\circ$; p-toluide m. $107-8^\circ$. X (1.90 g.) in 20 ml. Et_2O and an excess of a Grignard reagent (prepared by addition of p-MeC₆H-4NH₂ to EtMgBr in Et_2O) refluxed 30 min., diluted with 70 ml. Et_2O and the cooled solution washed with 2N HCl and with H_2O , the dried Et_2O evaporated and the residue crystallized from Et_2O gave 1.30 g. p-MeC₆H₄NHCO-CH₂CHMeCH(OH)CH₂Ph, m. $157-9^\circ$. Preparation of $\text{PhCH}_2\text{CO}(\text{CH}_2)_3\text{CO}_2\text{H}$ (XI), m. $59-61^\circ$ (semicarbazone m. $172-3^\circ$) and its Wolff-Kishner reduction gave $\text{Ph}(\text{CH}_2)_5\text{CO}_2\text{H}$, b0.6 132° , infrared spectrum similar to but differing from that of $\text{PhCH}_2\text{CH}_2\text{CHMeCH}_2\text{CO}_2\text{H}$. XI (0.50 g.) in 10 ml. absolute alc. hydrogenated with 0.025 g. prerduced PtO_2 , the oily product (0.50 g.) taken up in Et_2O and refluxed 30 min. with a Grignard reagent (prepared by addition of p-MeC₆H-4NH₂ to EtMgBr from 0.10 g. Mg in 25 ml. Et_2O), the mixture diluted with Et_2O and washed with 2N HCl and H_2O , dried and evaporated gave $\text{PhCH}_2\text{CH}(\text{OH})(\text{CH}_2)_3\text{CONHC}_6\text{H}_4\text{Me-p}$, m. $129-30^\circ$. Further examples of the methylation reaction were studied and comments made on the recorded ultraviolet and infrared spectra. The reaction mechanism was discussed.

IT Hydrogenation
(of (β -hydroxy- α -methylcinnamylidene)malonic acid
 γ -lactone)

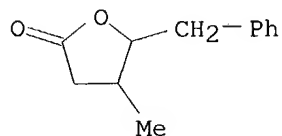
IT Spectra, infrared
Spectra, visible and ultraviolet

- (of butanolides, butenolides and related compds.)
- IT Methylation
(of ethylene trisubstituted derivs.)
- IT Olefins
(reactions of, with diazomethane)
- IT 2-Penten-4-ynoic acid, 3-methyl-5-phenyl-, methyl ester, stereoisomers
2-Penten-4-ynoic acid, 3-methyl-5-phenyl-, trans-
Malonic acid, (p-chloro- β -hydroxy- α -methyloinnamyldiene)-,
 γ -lactone
Malonic acid, (p-chloro- β -hydroxy- α -methyloinnamyldiene)-,
 γ -lactone, Me ester
Succinic acid, 2,3-di-p-tolyl-, diethyl ester, stereoisomers
Succinic acid, 2,3-di-p-tolyl-, stereoisomers
Succinic acid, 2-phenyl-3-m-tolyl-, diethyl ester, stereoisomers
Succinic acid, 2-phenyl-3-m-tolyl-, stereoisomers
- IT 1314-15-4, Platinum oxide, PtO₂
(catalysts, in hydrogenation of (β -hydroxy- α -
methylcinnamyldiene)malonic acid γ -lactone)
- IT 74-85-1, Ethylene
(derivs., methylation of trisubstituted)
- IT 1817-57-8, 3-Butyn-2-one, 4-phenyl- 2939-15-3, Malonic acid,
(β -hydroxy- α -methylcinnamyldiene)-, γ -lactone
2939-16-4, Malonic acid, (β -hydroxy-p, α -dimethylcinnamyldiene)-
, γ -lactone 91368-39-7, 2,4-Pentadienoic acid,
4-hydroxy-3-methyl-5-phenyl-, γ -lactone **91496-11-6**,
Valeric acid, 4-hydroxy-3-methyl-5-phenyl-, γ -lactone 91962-67-3,
1,3-Cyclopentanedione, 4-methyl-2-phenyl- 92164-18-6, Malonic acid,
(β -hydroxy- α -methyl-p-nitrocinnamyldiene)-, γ -lactone, Me
ester 92254-65-4, Malonic acid, (β -hydroxy- α -
methylcinnamyldiene)-, γ -lactone, Me ester 92549-58-1, Malonic
acid, (β -hydroxy-p, α -dimethylcinnamyldiene)-, γ -lactone,
Me ester 92856-63-8, Succinic acid, 2-(p-nitrophenyl)-3-phenyl-
93137-94-1, 2,4-Pentadienoic acid, 2-cyano-4-hydroxy-3-methyl-5-phenyl-,
 γ -lactone 93737-91-8, Succinic acid, 2-methyl-2-(phenylacetyl)-,
diethyl ester 93878-43-4, Succinic acid, 2,3-di-o-tolyl- 93878-46-7,
Succinic acid, 2-o-tolyl-3-p-tolyl- 93878-78-5, Succinic acid,
2-(p-methoxyphenyl)-3-p-tolyl- 94685-58-2, Succinic acid,
2-(p-nitrophenyl)-3-phenyl-, diethyl ester 94914-09-7,
p-Valerotoluidide, 3-methyl-5-phenyl- 95002-39-4, Succinic acid,
2-phenyl-3-p-tolyl-, diethyl ester 95156-78-8, Succinic acid,
2,3-di-m-tolyl- 95156-79-9, Succinic acid, 2-m-tolyl-3-p-tolyl-
95280-72-1, Succinic acid, 2-phenyl-3-p-tolyl- 95622-56-3,
1-Naphthalenesuccinic acid, β -phenyl-, diethyl ester 95947-80-1,
p-Valerotoluidide, 4-hydroxy-3-methyl-5-phenyl- 97081-40-8,
1-Naphthalenesuccinic acid, β -phenyl- 97116-28-4, Succinic acid,
2,3-di-o-tolyl-, diethyl ester 97116-29-5, Succinic acid,
2-o-tolyl-3-p-tolyl-, diethyl ester 98333-21-2, Succinic acid,
2,3-di-m-tolyl-, diethyl ester 98333-22-3, Succinic acid,
2-m-tolyl-3-p-tolyl-, diethyl ester 98333-28-9, Succinic acid,
2-(p-methoxyphenyl)-3-p-tolyl-, diethyl ester 100258-98-8,
p-Hexanotoluidide, 5-hydroxy-6-phenyl-
(preparation of)
- IT 334-88-3, Methane, diazo
(reactions of, with olefins)
- IT **93139-66-3**, Malonic acid, (2-hydroxy-1-methyl-3-phenylpropyl)-,
 γ -lactone
(stereoisomers)
- IT **91496-11-6**, Valeric acid, 4-hydroxy-3-methyl-5-phenyl-,

γ -lactone

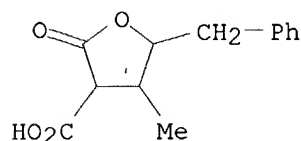
(preparation of)

RN 91496-11-6 HCAPLUS

CN Valeric acid, 4-hydroxy-3-methyl-5-phenyl-, γ -lactone (7CI) (CA INDEX NAME)IT **93139-66-3**, Malonic acid, (2-hydroxy-1-methyl-3-phenylpropyl)-, γ -lactone

(stereoisomers)

RN 93139-66-3 HCAPLUS

CN Malonic acid, (2-hydroxy-1-methyl-3-phenylpropyl)-, γ -lactone (7CI) (CA INDEX NAME)

L23 ANSWER 29 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1961:9919 HCAPLUS

DN 55:9919

OREF 55:1964f-g

ED Entered STN: 22 Apr 2001

TI Alginate **compositions** for making instant cold-milk puddings

IN Hunter, Austin R.; Rocks, James K.

PA Kelco Co.

DT Patent

LA Unavailable

CC 12 (Foods)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2949366		19600816	US	

AB A combination of a H₂O-soluble alginate, a sequestering agent, and a small amount of a slowly dissolving acid, such as fumaric or adipic acid, or a substance that slowly hydrolyzes in the presence of H₂O to give an acid, such as glucous- δ -lactone (I), or upon the addition of an acid salt, such as K bitartrate, produces a highly satisfactory cold-milk pudding **composition**. For example, Na phosphoalginate (II) (40% dispersing agent) 5.0, I 0.8, and skim-milk solids 24.2 g. produced a smooth, firm pudding after stirring with a cup of water and **refrigerating** for 30 min. The II is made from alginic acid and Na₃PO₄.

IT Puddings

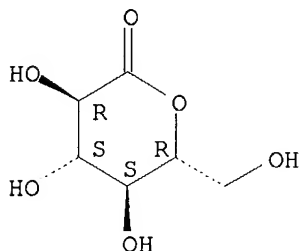
(alginate compns. for instant milk)

IT Alginic acid, sodium phosphate

(instant cold-milk puddings containing)

IT 90-80-2, Gluconic acid, δ -lactone
 (instant cold-milk puddings containing)
 IT 9005-32-7, Alginic acid
 (salts, instant cold-milk pudding containing)
 IT 90-80-2, Gluconic acid, δ -lactone
 (instant cold-milk puddings containing)
 RN 90-80-2 HCAPLUS
 CN D-Gluconic acid, δ -lactone (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L23 ANSWER 30 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1959:23485 HCAPLUS

DN 53:23485

OREF 53:4344h-i,4345a-i,4346a-i,4347a-i,4348a-b

ED Entered STN: 22 Apr 2001

TI Dipterocarpol. I. Preparation of 8,14-dimethyl-18-nortestosterone

AU Crabbe, Pierre; Ourisson, Guy; Takahashi, Takeyoshi

CS Univ. Strasbourg, Fr.

SO Tetrahedron (1958), 3, 279-302

CODEN: TETRAB; ISSN: 0040-4020

DT Journal

LA French

CC 10J (Organic Chemistry: Steroids)

AB A tetracyclic triterpene (I) isolated from gurjun balsam, the viscous oleoresins of Vietnamese Dipterocarpus Dyeri, D. alatus, D. intricatus, and D. artocarpifolius, was identified as van Itallie's dipterocarpol (C.A. 7, 477) and the hydroxydammaranone-II of Mills and Werner (C.A. 50,8703i) by origin, composition, and comparison of phys. consts. Infrared spectra were made of all compds., ultraviolet spectra determined in 95% alc. or cyclohexane, rotations measured at 18-22° with the yellow Hg line (5791A), and m.ps. determined in capillary tubes except as indicated. The nomenclature was based on the dammarane skeleton proposed by Mills (C.A. 51, 8042h), and the symbol 20 ξ 2 used to indicate the derivs. of the dipterocarpol-II series. The side chain of I was degraded to give the known Me ketone, 3 β -hydroxy-20-hexakisnordammaranone (II) by 3 different methods. The oleoresin centrifuged and filtered in vacuo, the residue washed with ligroine or C6H14 and filtered through Al2O3, the filtrate clarified (active C), evaporated, and the product crystallized (EtOH

or

EtOAc) gave I, 20 ξ 2-hydroxy-23-dammaren-3-one, m. 127° (solidifying and m. 135-6°), [α]_D 65° (c 3.7, CHCl₃), λ 290 m μ (ϵ 32, alc.), ν 3620, 1695, 1420, 1370, 815 cm.⁻¹, deep yellow with C(NO₂)₄; 2,4-dinitrophenylhydrazone, m. 162° (decomposition) (Kofler); semicarbazone, m. 206-7° (Kofler). I refluxed 18 hrs. with Ac₂O-C₅H₅N and the product filtered in petr. ether

through Al₂O₃ gave 20,24-dammaradien-3-one, m. 70-1° (dammadienone (Mills) and van Itallie's "anhydrodipterocarpol"), ν 1695, 1640 cm.⁻¹, and 20(22),24-dammaradien-3-one, m. 96° (Kofler), ν 1695 cm.⁻¹

Oxidation of I by CrO₃ according to Mills and Werner (loc. cit.) gave the known trisnor lactone (III), m. 183°. III (40 g.) in 500 ml. tetrahydrofuran (distilled over CaH₂) stirred at 0° with portionwise addition of 14 g. LiAlH₄, the mixture refluxed 1 hr., excess reagent decomposed with 20 ml. EtOAc and 20 ml. MeOH, the mixture diluted with H₂O and 300 ml. solvent evaporated, the mixture filtered and the filter cake washed with C₆H₆-CHCl₃, the extract concentrated, and the product (20 g.) crystallized (MeOH-H₂O)

gave 3 β ,20 ξ 2,24-trihydroxydammarane, m. 217-19° (Kofler), [α]_D 23° (c 1.0, dioxane); 3,24-diacetate (IV), m. 124-7° (CH₂Cl₂-petr. ether), [α]_D 32° (c 1.0, CHCl₃).

IV (800 mg.) kept 1 hr. at 20° in 20 ml. C₅H₅N and 3 ml. POCl₃, the mixture poured carefully into ice H₂O, the product (780 mg.) chromatographed on 10 g. Al₂O₃, and eluted with C₆H₆ gave 670 mg. of olefins, m. 119-24°, [α]_D 26° (c 1.0, CHCl₃), yellow color with C(NO₂)₄. The mixture ozonized in 50 ml. AcOH at room temperature to disappearance of color with C(NO₂)₄, diluted with H₂O and heated 30 min. at 80°, the oily product (680 mg.) chromatographed on 15 g. Al₂O₃, and eluted with 4:1 petr. ether-C₆H₆ gave 110 mg. authentic II acetate (V). Several expts. gave about 40% V but no other identifiable products. Steam distillation of the ozonization product gave HCHO, identified as the 2,4-dinitrophenylhydrazone, m. 165°. II (980 mg.) in 30 ml. dioxane kept overnight with 360 mg. KBH₄ in 20 ml. 1:1 H₂O-dioxane, excess oxidant destroyed with AcOH and the solution diluted with H₂O, the mixture extracted with Et₂O, the extract evaporated, and the residue chromatographed in C₆H₆ on Al₂O₃ gave 900 mg. 3 β -hydroxytrisnordammaran-20 ξ 2,24-olide (VI), m. 205-6° (CHCl₃-petr. ether), [α]_D 39° (c 1.4, CHCl₃); 3 β -acetate (VII), m. 237-8° (CH₂Cl₂-MeOH), [α]_D 50° (c 1.0, CHCl₃). Mg (7.2 g.), and 47.1 g. PhBr refluxed 1 hr. in 1.50 ml. Et₂O with dropwise addition of 13.8 g. VII in 200 ml. dry C₆H₆ and the mixture refluxed 2 hrs., treated at 0° with ice and saturated aqueous NH₄Cl, the H₂O-washed organic phase evaporated, the residue steam-distilled, and the refrigerated residue recrystd. (C₆H₆-petr. ether) gave 13.5 g. 3 β ,20 ξ 2-24-trihydroxy-24,24-diphenyltrisnordammarane, m. 194°, [α]_D 32° (c 1.0, CHCl₃); 3 β -acetate (VIII), m. 185-6°, [α]_D 34° (c 1.0, CHCl₃), λ 243, 249, 255, 259, 265 m μ (ϵ 328, 424, 511, 677, 461, alc.). VIII (800 mg.) in 40 ml. AcOH heated 6 hrs. at 80° with 80 mg. p-MeC₆H₄SO₃H with periodic spectrographic examination of 0.01 ml. samples in 10 ml. alc. at round 304 m μ , the cooled solution diluted with H₂O, the filtered mixture extracted with Et₂O, the isolated fractions chromatographed on 60 g. Al₂O₃, and eluted with 9:1 petr. ether-C₆H₆ yielded 73% 3 β -acetoxy-24,24-diphenyl-20(22),23-trisnordammaradiene (IX), m. 120-3° (CH₂Cl₂-MeOH), [α]_D 4° (c 2.0, CHCl₃), λ 305 m μ (ϵ 28,200, alc.), 262, 304, 306, 310 m μ (ϵ 11,000, 27,100, 27,000, 26,900, C₆H₁₄), saponified by refluxing 90 min. with KOH in 1:1 MeOH-dioxane and purified by chromatography on Al₂O₃ to give the corresponding alc., [α]_D -7° (c 2.0, CHCl₃). Further elution with 1:1 petr. ether-C₆H₆ yielded 26% 3 β -acetoxy-24,24-diphenyl-20 ξ 2,24-epoxytrisnordammarane (X), m. 231-1.5° (CHCl₃-MeOH), [α]_D 24° (c 1.2, CHCl₃), λ 260 m μ (ϵ 875,

alc.), saponified with KOH in MeOH-dioxane to the alc., m. 195° (CHCl₃-petr. ether), [α]_D 12° (c 2.0, CHCl₃). VIII (500 mg.) in 10 ml. AcOH kept several hrs. with 800 mg. Na₂Cr₂O₇·2H₂O in 10 ml. AcOH at 25° and the crystalline product recrystd. (CHCl₃-MeOH) gave 458 mg. X, also obtained in 70% yield by refluxing VIII 38 hrs. (CO₂H)₂ in AcOH (N atmospheric). X (1 g.) in 50 ml. AcOH heated 24 hrs. with 90 mg. p-MeC₆H₄SO₃H

at

80°, diluted with H₂O, and the product chromatographed yielded 56% IX and 40% X. IX (310 mg.) in 20 ml. 1:1 CH₂Cl₂-AcOH stirred magnetically at 0° with dropwise addition of 250 mg. CrO₃ in 2.4 ml. 5:1 AcOH-H₂O and the stirring continued 1 hr. at 0°, excess CrO₃ destroyed with Na₂S₂O₅, the solvents evaporated, the residue taken up in a min. of CH₂Cl₂ and the solution diluted with Et₂O, the isolated product chromatographed on Al₂O₃, and eluted with petr. ether gave initially 69 mg. β,β-diphenylacrolein, m. 40-7°; 2,4-dinitrophenylhydrazone, m. 195°. Further elution with petr. ether and petr. ether-C₆H₆ yielded 181 mg. V, m. 204-5°, [α]_D 67° (c 1.2, CHCl₃), saponified at room temperature to the known II. Saponification of VII and

isolation by

dilution with H₂O and slow acidification with increasingly diluted HCl gave the corresponding 3β,20ξ²-dihydroxytrisinordammarane-24-carboxylic acid (XI), m. 180-3° (with loss of H₂O, m. 201-2°, after solidification), [α]_D 41° (c 1.0, dioxane), ν 1706 cm.⁻¹ (CHCl₃). Treatment of the undiluted saponification solution with excess HCl or acidification of XI in MeOH with dilute HCl gave the corresponding lactone VI, ν 1765 cm.⁻¹ (CHCl₃), also obtained by reduction of III with KBH₄ in 1:1 dioxane-H₂O. Acetylation of VI regenerated VII. The degradation of the side chain of I was completed by cleavage of II with CF₃CO₃H in the presence of Na₂HPO₄ (C.A. 50, 803e). CH₂Cl₂ (50 ml.) containing 1.5 ml. 85% H₂O₂ treated instantaneously with 9 ml. (CF₃CO)₂O at 0° and the mixture stirred with rise of temperature to 20°, the homogeneous solution treated dropwise in 15 min. at room temperature with 3.17 g. II in 50 ml.

CH₂Cl₂

containing 24 g. anhydrous Na₂HPO₄ (with external cooling), the mixture treated cautiously (external cooling) with 10% aqueous Na₂CO₃ and 200 ml. Et₂O, the dried organic phase evaporated, the residual oil (3.59 g.) chromatographed on

100

g. Al₂O₃, and eluted with Et₂O yielded 77% 17β-acetoxy-3β-hydroxyoctakisnordammarane (XII), m. 198-9.5°, [α]_D 54° (c 1.0, CHCl₃); 3β,17β-diacetate, m. 161° (MeOH-H₂O), [α]_D 59° (c 1.0, CHCl₃). Further elution with Et₂O gave 800 mg. 3β,17β-dihydroxyoctakisnordammarane, m. 209-10° (MeOH-H₂O), [α]_D 47° (c 1.0, CHCl₃), also obtained by saponifying XII. The preparation of the title compound (XIII)

with the

same tetracyclic skeleton and the same stereochem. structure as I was accomplished by modification of ring A of XII following model expts. on the ring A of the lactone VI and of the Me ketone II. VI (2 g.) in 400 ml. dry C₆H₆ distilled with loss of 50 ml. C₆H₆ and the H₂O-free solution treated at 0° with 2.8 g. freshly sublimed PCl₅, the suspension stirred magnetically 1 hr. and bubbled with N, the solution stirred vigorously with 350 ml. 10% aqueous Na₂CO₃, the H₂O-washed organic layer

filtered

through Al₂O₃, dried (Na₂CO₃), and evaporated gave 1.98 g. oil, recrystd. (CH₂Cl₂-MeOH) to give neo-A-3-trisinordammaren-20ξ²,24-olide (XIV), m. 168-70°, [α]_D 37° (c 1.0, dioxane). XIV (500 mg.) in

5 ml. CH₂Cl₂ saturated 2 hrs. with dry HCl at 10° and the solution washed with H₂O and 10% aqueous Na₂CO₃, the dried solution evaporated, and the

product kept

several days in CH₂Cl₂-petr. ether gave the isomeric neo-A-3(5)-trisinordammaren-20 ξ 2,24-olide (XIVa), m. 108-12°, [α]J 56° (c 1.0, CHCl₃), weakly pos. Beilstein reaction. Analogous treatment of VI with PCl₅ under N without bubbling gave a mixture of XIV and XIVa. XIV (1.5 g.) in 20 ml. CH₂Cl₂ ozonized to permanent blue coloration, treated at 20° with 10 ml. AcOH and stirred magnetically with portionwise addition of 3 g. powdered Zn., the product (neg. starch-iodide reaction) chromatographed on 25 g. Al₂O₃, and eluted with 1:1 petr. ether-C₆H₆ gave 920 mg. trisinor-A(4)-5 β -3-trisinordammaren-20 ξ 2-24-olide (XV), m. 194-6° (CH₂Cl₂MeOH), [α]J 185° (c 1.0, CHCl₃), λ 279, 288, 299, 310 m μ (ϵ 33, 35, 34, 28, C₆H₁₄), with a characteristic fine structure in nonpolar solvents similar to that of cyclopentanone. Further elution with 9:1 MeOH-AcOH gave 550 mg. corresponding hydroxy acid, m. 205-7° (MeOH), treated in MeOH with a trace of HCl, chromatographed rapidly, and eluted with petr. ether-C₆H₆ to give XV. II (1 g.) treated with PCl₅ as for VI, chromatographed, and eluted with petr. ether gave 700 mg. neo-A-3-hexakisnordammaren-20-one (XVI), m. 120-1°, [α]J 52° (c 0.9, dioxane), isomerized in MeOH by dry HCl in 20 min. at 0° to neo-A-3(5)-hexakisnordammaren-20-one, m. 72.5-74° (MeOH), [α]J 102° (c 1.0, CHCl₃). XVI (700 mg.) ozonized, the product chromatographed on 40 g. Al₂O₃, and eluted with 9:1 C₆H₆-Et₂O gave 220 mg. trisinor-A(4)-5 β ,3,20-hexakisnordammaradione, m. 156-8°, [α]J 195° (c 1.0, CHCl₃). Further elution with 9:1 MeOH-AcOH gave 225 mg. amorphous acid, ν 1690, 1739 cm.⁻¹, methylated with CH₂N₂ in Et₂O to give an amorphous material, ν 1740 cm.⁻¹, and probably the C-20 acid (cf. Harries, C.A. 4, 2633). XII (2 g.) treated as for VI and the chromatographed product eluted with petr. ether yielded 1.14 g. 17 β -acetoxynor-A-3-octakisnordammarene (XVII), m. 141.5-43°, (MeOH), [α]J 43° (c 1.0, dioxane), saponified and the product chromatographed in 1:1 C₆H₆-Et₂O on Al₂O₃ to give the alc., m. 125-6° (MeOH-H₂O), [α]J 32° (c 1.0, dioxane). Ozonization of 880 mg. XVII and chromatography of the crude product on 20 g. Al₂O₃ gave 513 mg. 17 β -acetoxyl-trisinor-A(4)-5 β -3-octakisnordammarone (XVIII), m. 185-7°, [α]J 185° (c 1.0, CHCl₃), saponified to the alc. ketone, m. 127-8° (MeOH), [α]J 213° (c 1.0, CHCl₃). MeMgI (2.25 g. Mg and 6 ml. MeI in 20 ml. Et₂O filtered through cotton) refluxed with addition of 333 mg. XVII in 20 ml. C₆H₆ and the refluxing continued 48 hrs., the Et₂O evaporated and the C₆H₆ solution refluxed 1 hr., the isolated oily product (324 mg.) acetylated immediately with 4 ml. C₅H₅N and 5 ml. Ac₂O, the crystalline product (360 mg.) chromatographed on 10 g. Al₂O₃, and eluted with petr. ether gave 112 mg. oily dehydration product. Elution with 10:1 petr. ether-Et₂O yielded 77 mg. XVIII. The yield was larger in expts. made with shorter reflux periods and quant. in those made only in Et₂O or with MeLi in tetrahydrofuran. Further elution with 5:1 petr. ether-Et₂O gave 139 mg. 17 β -acetoxyl-3 α -hydroxy-3 α -methyl-A(4)-trisinor-(5 β)-octakisnordammarane, (XVIII), m. 153-5° (petr. ether), [α]J 31° (c 0.3, CHCl₃), saponified and the product chromatographed in 1:1 petr. ether-Et₂O on Al₂O₃ to give the diol, m. 145-8° (petr. ether), [α]J 36° (c 0.5, CHCl₃). Dry CHCl₃ (10 ml.) saturated with dry HCl containing 100 mg. XVIII kept 1 hr. at room temperature with shift of [α]J from 30° to 75°, the solution poured into H₂O, extracted with Et₂O, the oily product (98 mg.) chromatographed on 5 g. Al₂O₃, and eluted with petr. ether yielded 84% 17 β -acetoxyl-3-methyl-A(4)-trisinor-3(5)-octakisnordammarene (XIX), m. 90-1°, [α]J 75° (c 1.0, CHCl₃). OsO₄ (100 mg.) in 5 ml. Et₂O kept 4 days at room temperature, the

solution evaporated in vacuo and the residue taken up in 10 ml. dry C₆H₆, the solution treated with excess LiAlH₄ in Et₂O, and the product crystallized (Et₂O)

gave 87 mg. 3-methyl-3 α ,5 α ,17 β -trihydroxy-A(4)-trishnoroctakisnordammarane (XX), m. 126-8° (161-3° after loss of solvent), [α]J 20° (c 0.85, CHCl₃); 17 β -acetate, m. 138-9° (Et₂O), [α]J 28° (c 0.8, CHCl₃). XX (87 mg.) in 5 ml. CHCl₃ kept 1 hr. at room temperature with 96 mg. Pb(OAc)₄ in 5 ml.

AcOH, the mixture treated with 24 mg. Pb(OAc)₄ in 1 ml. AcOH and kept overnight, excess reagent destroyed by 1 drop HOCH₂CH₂OH, and the product isolated yielded 90 mg. pale yellow oily diketone (XXI). Testosterone (80 mg.) and 90 mg. XXI each taken up in 10 ml. 10% KOH in MeOH and heated several min. at 80° to comparable intense yellow enolate solns., the solns. kept 1 hr. until the extinction coefficient at 242 m μ corresponded to total enolization, the oily product (96 mg.) from XXI isolated, chromatographed on 5 g. Al₂O₃, eluted with 10:1 C₆H₆-Et₂O, and crystallized (petr. ether) gave 62 mg. XIII, 17 β -hydroxy-28,29-bishnoro-4-dammaren-3-one, m. 208-10°, [α]J 140° (c 1.1, CHCl₃), λ 242 m μ (ϵ 19,300, alc.), ν 3600, 1670, 1620 cm.⁻¹ (CH₂Cl₂). V was obtained by Mills (loc. cit.) in a 1:1 mixture with the corresponding 2-nor-20-ketone acetate (XXII). The configuration at C-17 in V and XXII is the same as that in I as shown by the action of MeMgI on XXII. MeMgI (250 mg. Mg and 1 ml. MeI in 10 ml. Et₂O) treated with 239 mg. XXII, the mixture refluxed 3 hrs. with 10 ml. C₆H₆, decomposed and the isolated product (246 mg.) acetylated at room temperature, the acetates chromatographed on 9 g. Al₂O₃, eluted with 1:9 to 1:1 C₆H₆-petr. ether, the crystalline fractions (185 mg.) recrystd. separately in MeOH-H₂O, reunited, and recrystd. gave an authentic acetate identical with the dammaranediol-II monoacetate, m. 106-8°, obtained by Mills from I. Triangulation by crystallization of the residues from the mother liquors in MeOH-H₂O and MeNO₂ gave a small amount of the C-20 epimer, m. 142-4°, described by Mills as the dammaranediol-I monoacetate. The 1:1 mixture (5 g.) of ethylenic acetates (Mills, loc. cit.) ozonized 1 hr. at room temperature in 20 ml. CH₂Cl₂ and 100 ml. AcOH, the ozonides diluted with H₂O and heated 45 min. at 80° with passage of warm air through the solution, the crystalline product washed with H₂O, the dried material (4.8 g.) chromatographed on 48 g. Al₂O₃ and, eluted with Et₂O-petr. ether gave 3.48 g. pure mixture (XXIII) of V and XXII. (CF₃CO)₂O (3.6 ml.) and 0.64 ml. 85% H₂O₂ in 45 ml. CH₂Cl₂ at 0° treated with 3.48 g. XXIII in 40 ml. CH₂Cl₂ containing 6.15 g. anhydrous Na₂HPO₄, the mixture brought to room temperature and kept 15 min., decomposed

by addition of 10% Na₂CO₃, and the product isolated gave 3.6 g. crude mixture of diesters, 3 β ,17 β -diacetoxyoctakisnordammarane and 3 β -acetoxo-17 β -heptoyl-octakisnordammarane, saponified by refluxing 1 hr. with 1.5 g. NaOH in 15 ml. 95% alc., diluting the solution with H₂O, chromatographing the isolated product (2.59 g.) on 25 g. Al₂O₃, and eluting gave 2.20 g. 3 β ,17 β -dihydroxyoctakisnordammarane in 62% over-all yield from the mixture of ethylenic acetates. Although the corresponding lanosterol derivative has a marked progestational activity (Isler, et al., C.A. 50, 15570b) the analogous II is inactive in the Clauberg test. Similarly XIII, the analog of testosterone, has neither androgenic nor anabolic activity in the Herschberger test. Accordingly it is possible that the stereochemistry of XIII does not correspond to that of testosterone.

IT Dipterocarpus

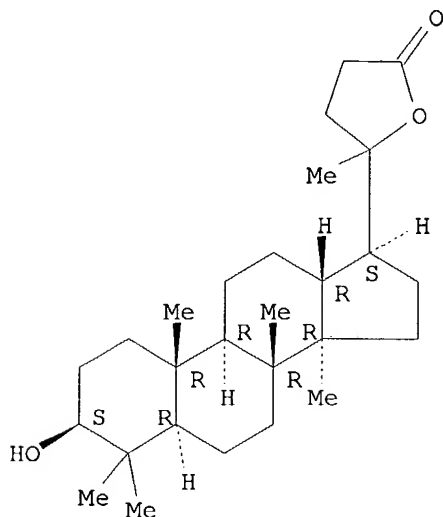
(dipterocarpol from)

IT Stereochemistry

- (of dipterocarpol)
- IT Infrared spectra
Ultraviolet and visible, spectra
(of dipterocarpol and derivs.)
- IT Dammara-20(22),24-dien-3-one
Heptanoic acid, ester with 3-acetate of octanordammaran-3 β ,17 β -diol
Hexanordammaran-20-one, 3 β -hydroxy-
Hexanordammaran-20-one, 3 β -hydroxy-, acetate
Neo-A-hexanordammar-3(5)-en-20-one
Neo-A-hexanordammar-3-en-20-one
Neo-A-octanordammar-3-en-17 β (?)-ol
Neo-A-octanordammar-3-en-17 β (?)-ol, acetate
Neo-A-trinordammar-3(5)-en-24-oic acid, 20 ξ 2-hydroxy-, γ -lactone
Neo-A-trinordammar-3-en-24-oic acid, 20 ξ 2-hydroxy-, γ -lactone
Trinor-A(4)-5 β -octanordammaran-3-one, 17 β (?)-hydroxy-
Trinor-A(4)-trinor-5 β -dammaran-24-oic acid, 20 ξ 2-hydroxy-3-oxo-, γ -lactone
Trinordammaran-24-oic acid, 20 ξ 2-hydroxy-3-oxo-, γ -lactone
Trinordammaran-24-oic acid, 3 β ,20 ξ 2-dihydroxy-, 3-acetate
Trinordammarane-3 β ,20 ξ 2,24-triol, 3,24-diacetate
Trinordammarane-3 β ,20 ξ 2,24-triol, 24,24-diphenyl-
- IT 471-69-2, Dipterocarpol
(20 ξ 2-hydroxydammar-23-en-3-one as structure of)
- IT 124402-77-3, Dammar-23-en-3-one, 20-hydroxy-
(and identity with dipterocarpol, and derivs.)
- IT 96192-59-5, Octanordammarane-3 β ,17 β -diol
(esters)
- IT 1975-28-6, 18-Nor-5 α -pregnan-20-one, 3 β -hydroxy-4,4,8,14-tetramethyl-, acetate 3819-21-4, 18-Nor-5 α -pregnan-20-one, 3 β -hydroxy-4,4,8,14-tetramethyl- 16883-32-2, Dammara-20,24-dien-3-one 96192-59-5, Octanordammarane-3 β ,17 β -diol 106409-40-9, Trinor-A(4)-5 β -hexanordammarane-3,20-dione 106409-44-3, Trinor-A(4)-5 β -octanordammaran-3-one, 17 β (?)-hydroxy-, acetate 107297-26-7, Trinordammaran-24-oic acid, 3 β ,20 ξ 2-dihydroxy-, γ -lactone 108630-66-6, Trinordammara-20(22),23-dien-3 β -ol, 24,24-diphenyl- 109015-24-9, Trinordammara-20(22),23-dien-3 β -ol, 24,24-diphenyl-, acetate 109015-28-3, Trinordammaran-3 β -ol, 20 ξ 2,24-epoxy-24,24-diphenyl-, acetate 109015-30-7, Trinordammarane-3 β ,20 ξ 2,24-triol, 24,24-diphenyl-, 3-acetate 109844-95-3, Trinordammaran-24-oic acid, 3 β ,20 ξ 2-dihydroxy- 109868-52-2, Trinordammarane-3 β ,20 ξ 2,24-triol 112507-79-6, 7H-Benz[e]inden-7-one, dodecahydro-3-hydroxy-6,9a,9b-trimethyl-6-(3-oxobutyl)-(?) 112743-97-2, 18-Norandrost-4-en-3-one, 17 β -hydroxy-8,14-dimethyl- 112743-98-3, Octanor-A(4)-trinordammarane-3 α ,5 α ,17 β (?)-triol, 3-methyl- 112743-99-4, Octanor-A(4)-trinor-5 β -dammarane-3 β , 17 β (?)-diol, 3 α -methyl- 114699-21-7, Octanor-A(4)-trinor-5 β -dammarane-3 β , 17 β (?)-diol, 3 α -methyl-, 17-acetate 114984-96-2, Octanor-A(4)-trinordammarane-3 α ,5 α ,17 β (?)-triol, 3-methyl-, 17-acetate 119112-65-1, Octanor-A(4)-trinordammar-3(5)-en-17 β (?)-ol, 3-methyl-, acetate 123237-70-7, 21-Nordammaran-20-one, 3-hydroxy-, acetate 124382-65-6, Trinor-A(4)-trinor-5 β -dammaran-24-oic acid, 20 ξ 2-hydroxy-3-oxo-
(preparation of)
- IT 107297-26-7, Trinordammaran-24-oic acid, 3 β ,20 ξ 2-dihydroxy-, γ -lactone
(preparation of)

RN 107297-26-7 HCAPLUS
 CN 18-Nor-5 α ,20 ξ -cholanic acid, 3 β ,20-dihydroxy-4,4,8,14-tetramethyl-, γ -lactone (7CI) (CA INDEX NAME)

Absolute stereochemistry.



L23 ANSWER 31 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1956:52566 HCAPLUS
 DN 50:52566
 OREF 50:10058a-i,10059a-i,10060a-i,10061a-e
 ED Entered STN: 22 Apr 2001
 TI Addition of maleic anhydride to styrene. Diene syntheses and substituting additions in the styrene series
 AU Alder, Kurt; Schmitz-Josten, Robert; Broockmann, H.; Huhn, Kurt; Gabler, H.
 CS Univ. Cologne, Germany
 SO Ann. (1955), 595, 1-37
 DT Journal
 LA Unavailable
 CC 10 (Organic Chemistry)
 GI For diagram(s), see printed CA Issue.
 AB The mechanism of adduct formation and stereochem implications are discussed in great detail. Styrene (I) (21 g.), 60 g. maleic anhydride (II), 0.5 g. p-C₆H₄(OH)₂, and 0.25 g. iodine in 20 cc. C₆H₆ refluxed 27 hrs. at 130° gave a mixture of 13.3 g. (crude) 1,2-C₁₀H₆(CO₂H)₂ (III), m. 175-8°, and 13.2 g. (crude) 1,2-cis,cis-dicarboxy-1,2,3,4-tetrahydronaphthalene (IIIa), long needles, m. 182° (decomposition) (from H₂O) (or 193°, when rapidly heated). The separation of III and IIIa is described fully. I (75 g.), 150 g. II, and 10 g. picric acid in 100 cc. C₆H₆ refluxed 35-45 hrs. on a steam bath, cooled gradually, **refrigerated** several days and the precipitate comminuted, filtered, triturated with warm C₆H₆, filtered, triturated with AcOEt-ligroine (1:1), and refiltered gave 120-135 g. of the mixture (IV); the combined mother liquors from IV diluted with C₆H₆ gave more IV, and, after filtration, were concentrated in vacuo and freed from residual I and II by distillation in a high vacuum; the resulting still residue (V) boiled with 500 cc. 20% aqueous

Na₂CO₃, extracted with Et₂O to remove neutral matter, treated with C, and shaken with 120 g. Me₂SO₄ (in small portions) gave an oil, which, taken up in AcOEt, dried, evaporated, reesterified with 25 cc. Me₂SO₄ and 20 g. KOH in 100 cc. MeOH, and fractionated at 13 mm. gave 3 main fractions, of which the 1st 6.5 g., b₁₃ 220-45°, yielded III on saponification [isolated as the anhydride (IIIb), m. 168-9°]. The other 2 fractions (19.5 g.), b₁₃ 245-70°, and 19 g., b₁₃ 270-90°, yielded no definite compds.

V, after methylation as above and removal of the di-Me maleate, gave 70 g. of a still residue which was heated 2 hrs. at 250° with 20 g. S and then distilled at 320°/13 mm. A fraction b₁₃ 220-50°, saponified and oxidized with H₂O₂, gave IIIb; a fraction b₁₃ 250-320° treated in aqueous KOH with H₂O₂, acidified, extracted with Et₂O and the dried extract evaporated

to 500 cc. gave 2.3 g. (crude) [3(or 4)-carboxy-1-naphthyl]succinic acid (VI), m. poorly about 200° [tri-Me ester, C₁₈H₁₈O₆, yellow leaflets, m. 97° (from MeOH)]. The mother liquors from VI evaporated to dryness, heated 2 hrs. with Ac₂O, and distilled fractionally gave a small amount of IIIb and a mixture b₁₃ 250-310°, which crystallized from glacial AcOH; this, heated with Me₂CO, gave 0.5 g. of an insol. acid, m. 270°, whose Me ester (C₈H₆O₃)_n, greenish yellow crystals, m. 121° (from MeOH, after treatment with C), was not identical with C₁₀H₅(CO₂Me)₃. IV (115 g.) was extracted in a Soxhlet with tetrahydrofuran (VII) (dried over Na) until about 10-20 g. IV remained undissolved in the thimble; the cooled extract gave about 40 g. crystalline matter which, filtered promptly, washed with VII, and recrystd. from VII, yielded "dianhydride A" (VIII), needles or prisms, m. 202-3° (also given as 204°), unreactive toward alkaline KMnO₄. The insol. thimble residue after repeated crystallization from VII, Ac₂O, or Me₂CO gave "dianhydride B" (IX), m. 268° (decomposition), rapidly decolorizing alkaline KMnO₄. The VII mother liquors contained mixts. of VIII and IX, which were evaporated and the residue heated at 80° with 1 l. H₂O, giving 5 g. insol. crude IX and from the aqueous solution on concentration, the tetracarboxylic acid A, C₁₆H₁₆O₈ (VIIIa), corresponding to VIII, fine needles, m. 176° (decomposition) (from H₂O) (also given as 178°). After completed crystallization of VIIIa, the final mother liquors contained the very soluble, uncrystallizable tetracarboxylic acid B (IXa) corresponding to IX, which, heated in vacuo, lost 1 H₂O, forming the corresponding monoanhydride dicarboxylic acid (IXb), m. 263° (decomposition) (from HCO₂H followed by Me₂CO), converted into IXa by hot H₂O. Tetra-Me ester (X) of VIIIa, plates, m. 78° (from MeOH or ligroine). VIIIa reacted violently with a mixture of 5 parts Ac₂O and 1 part AcCl, giving VIII. VIIIa (6 g.) heated 2 hrs. at 240° gave a glassy resin which, treated in Me₂CO with C, gave 2 g. of a stereoisomer (XI) of VIII, C₁₆-H₁₂O₆, m. 229-30° (from Ac₂O, followed by Me₂CO), which with MeOH and Me₂SO₄ gave the tetra-Me ester (XIa), C₂₀-H₂₄O₈ (stereoisomer of X), flat prisms, m. 66°, giving a m.p. depression with X. X (4 g.) in 30 cc. MeOH refluxed 4 hrs. with 30 cc. 40% aqueous KOH, followed by addition of H₂O, concentration, slight

acidification with

HCl, evaporation to dryness, extraction in a Soxhlet with Me₂CO, and addition of BuOAc

to the extract gave a stereoisomer (C₁₆H₁₆O₈) (XII) of VIIIa, m. 220-1°, giving a tetra-Me ester, octahedrons, m. 79°, not identical with either X or XIa. XII warmed with Ac₂O at 80-90° gave VIII. VIII (3 g.) heated 1 hr. at 230-40° and then in vacuo at 270° gave a distillate that, after treatment with hot aqueous Na₂CO₃ and H₂O₂, filtration, concentration, and acidification, gave 1.7 g. III (di-Me ester, m. 80°). VIIIa (11 g.) in 100 cc. H₂O at 80° treated gradually with an aqueous solution of 50 g. KMnO₄, heated on the steam bath until

oxidation was complete, filtered, evaporated in vacuo, acidified with HCl, extracted with Et₂O, the extract evaporated, and the oily residue triturated with

MeCN gave about 2 g. phthalic acid (partly free, partly as the anhydride). VIII (4 g.) in 25 cc. highly purified glacial AcOH heated to boiling, treated very gradually, with concomitant irradiation, with 8.6 g. Br in 20 cc. glacial AcOH, and refluxed about 2.5-3 hrs. gave 2.6 g. (crude) dianhydride of 1,2-dicarboxy-4-naphthylsuccinic acid (XIII), C₁₆H₈O₆, m. 255° (decomposition) (from Ac₂O or dioxane), which, heated with H₂O or aqueous AcOH, gave the corresponding tetracarboxylic acid, C₁₆H₁₂O₈·H₂O, m. 230° (decomposition); tetra-Me ester, C₂₀H₂₀O₈, b₁₂ 280° (with slight decomposition), m. 111-12° (from MeOH). The mother liquors from XIII yielded impure 1,2,4-C₁₀H₅(CO₂H)₃, (XIV). XIII (3 g.) in 200 cc. H₂O and 3 cc. concentrated H₂SO₄ with 10 g. KMnO₄ in 200 cc. H₂O at 40° yielded CO₂ and crude XIV, m. 280, separated from the MnO₂ by dissolving the precipitate in aqueous H₂SO₃ evaporating, and adding HCl. Tri-Me ester (XV) of XIV m.

120° (from MeOH). PhCMe:CH₂ (30 g.), 30 g. II, 1 g. picric acid, and 0.1 g. p-C₆H₄(OH)₂ refluxed 12 hrs., and the solution separated from a brown

oil (XVI), refluxed 12 hrs. longer, and evaporated in vacuo gave the anhydride, m. 222° (from AcOEt), of 1,3,4-MeC₁₀H₅(CO₂H)₂. XVI heated 1 hr. with 5 g. S and distilled at 220-50° gave a yellow resin, which, treated in warm aqueous NaOH with H₂O₂ to oxidize the S, yielded 12 g. 1,3,4-MeC₁₀H₅(CO₂H)₂, m. 225° (from AcOEt), 1.5 g. of which, in 500 cc. H₂O neutralized with Na₂CO₃, warmed to 75°, shaken vigorously with a mixture (added in 1 portion) of 1.6 g. MgSO₄ and 2.25 g. KMnO₄, another similar mixture then added, and the cooled solution acidified with HCl, reduced with SO₂, and concentrated in vacuo gave crude XIV (from which other components were extracted by boiling AcOEt), identified by conversion into XV. XV was also formed by adding II to Me atropate, and esterifying and dehydrogenating the product, but no details are given. VIIIA (20 g.) in 300 cc. glacial AcOH refluxed 24 hrs. with 18 g. SeO₂, concentrated in vacuo, dissolved in 300 cc. H₂O, treated with SO₂ to complete the reduction to Se, heated, filtered, concentrated to 100 cc., and extracted with Et₂O gave in

the extract crude (1,2-dicarboxy-3,4-dihydro-4-naphthyl)succinic acid (XVII), m. about 200°, which, heated, without purification, 2 hrs. with Ac₂O at 100° gave 15 g. of the corresponding dianhydride, C₁₆H₁₀O₆, m. 195° (from AcOEt-ligroine). Tetra-Me ester of XVII m. 107°.

Crude XIII (12 g.) in 60 cc. freshly distilled quinoline was heated slowly to 160° with 2 g. Adkins Cu chromite catalyst, 1 g. of the catalyst added when the CO₂ evolution slackened at 190°, and the mixture taken to and maintained at 210° for 45 min.; the total CO₂ evolved (1.1 l.) accounted only for 1.4 CO₂H groups. The cooled mixture diluted with AcOEt, filtered, extracted with aqueous Na₂CO₃, methylated with Me₂SO₄, extracted with

Et₂O, methylated further with CH₂N₂, and fractionated in vacuo gave as the only product isolated from 2 main fractions 4 g. tri-Me ester (XVIII) of [1(or 2)-monocarboxy-4-naphthyl]succinic acid, C₁₈H₁₈O₆, nacreous leaflets, m. 99° (from MeOH). Attempts to isolate another product from the mother liquors were unsuccessful. XVIII, saponified with alc. KOH and acidified gave the monocarboxy anhydride, C₁₅H₁₀O₅, m. 224° (decomposition) (from glacial AcOH). VIII (12 g.) heated 15 min. at 260° (gas evolution), and the residue fractionated in vacuo gave acrylic acid (identified as the S-benzylisothiuronium salt, m. 167°, and by formation of a cyclopentadiene adduct which was converted into p-bromophenacyl 1,4-endomethylenecyclohexanecarboxylate, m.

92°, details for the formation of which are given). The main pyrolysis product from VIII was (2-hydroxy-3-naphthyl)acetic acid lactone, b13 210°, crystallizing on **refrigeration** (cf. Eistert, C.A. 30, 5214.3), for which no analyses are given. VIII (20 g.) in 150 cc. PhNO₂ stirred gradually into a suspension of 40 g. AlCl₃ in 150 cc. PhNO₂ at room temperature, stirring continued 3-4 hrs., the mixture treated with ice-HCl, the crystalline product filtered, the PhNO₂ phase washed successively with dilute

HCl, H₂O, and aqueous NaHCO₃, the washings combined, acidified with HCl, and the precipitate combined with the original crystalline product gave 17-18 g.

XIX, m.

288-95° (decomposition) (from AcOH). Heated with Me₂SO₄ in MeOH, XIX gave a tri-Me ester, C₁₉H₂₀O₇, (XX), m. 171°. The oxotricarboxylic acid (5 g.) corresponding to XX (preparation and properties not given) refluxed 3 days with 20 g. Zn-Hg and 100 cc. "60%" HCl, evaporated to dryness in vacuo, treated with AcONa and dilute AcOH and with H₂S, filtered, and the filtrate extracted with Et₂O and evaporated gave 4 g. of an oil, which, heated 2 hrs. at 300° with a mixture of 1 g. Pd-C and 1.5 g. Cu chromite, then 1 hr. at 350°, and the cooled mixture extracted in a Soxhlet with AcOEt gave the hydrocarbon perinaphthindan, isolated as the picrate, m. 150° (cf. Craig, et al., C.A. 35, 5505.1). XI subjected to a Friedel-Crafts reaction, similar to that given above yielded an oxomonocarboxylic acid, C₁₆H₁₂O₆, m. 242-44°, isomeric with XIX, giving a tri-Me ester, m. 151° (from MeOH), isomeric with XX. IX in boiling H₂O was hydrolyzed very slowly to IXa, which in vacuo at 100° gave IXb; this boiled with Ac₂O was reconverted into IX. The tetra-Me ester of IXa, needles, m. 163°, was best formed by warming IX with Me₂SO₄ in weakly alkaline aqueous or MeOH solution X (1 g.) with 1 g. S at 230° gave 0.4 g. III (di-Me ester, m. 81°). IXb (1 g.) heated 1 1/4 hrs. with 10 cc. H₂O and 6 cc. H₂SO₄ and diluted with 100 cc. H₂O gave 0.5 g. IIIa, fairly stable to alkaline KMnO₄. IX boiled with 200 cc. H₂O, cooled to 0° shaken with an excess of Br, and evaporated gave XXI (R = OH) (XXIa), crystallizing with 2 moles H₂O, m. 250°, which, dried in vacuo at 100°, retained 1 mole H₂O and m. 260° (decomposition). In MeOH with CH₂N₂, XXIa gave the tri-Me ester, m. 221°. XXIa refluxed 7 hrs. with Ac₂O formed an acetylated anhydride, C₁₈H₁₆O₉ (XXII), m. above 280° (from Ac₂O). When this acetylation reaction was followed, prior to the crystallization of XXII, by heating with an excess of MeOH, evaporation to

dryness, repetition of the MeOH addition, evaporation, and subsequent methylation

in Et₂O with CH₂N₂, the product was the monoacetyl tri-Me ester (XXIII) of XXIa, C₂₁H₂₄O₁₀, felted needles, m. 196°. XXIII (1.5 g.) heated in vacuo to 250° gave a mixture of di-Me maleate and fumarate, b12 100-20°, and an oil, b12 200-40°, which, heated with concentrated HCl and evaporated in vacuo, formed IIIa. IX hydrolyzed to IXa, evaporated to

5

cc., heated 10 hrs. at 60° with about 35 g. 60% H₂SO₄, allowed to stand 8 days at room temperature, then diluted with an equal volume of H₂O, and subjected to a series of concns. in vacuo with intermediate filtrations gave 2-2.5 g. XXI (R = H) (XXIb). 2H₂O, m. 285° (decomposition), stable to alkaline KMnO₄; tri-Me ester, C₁₉H₂₂O₈, m. 237-8° (from MeOH). When XXIb was heated several hrs. at 70° in glacial AcOH with H₂O₂ (with or without WO₃), 70% was recovered; XXIb and AcOOH kept 14 days at 20° and then heated 3 hrs. at 100° remained practically unchanged. When the tri-Me ester of XXIb (6 g.) in 600 cc. glacial AcOH was ozonized 40 hrs., 50% was recovered unchanged; the concentrated mother

liquor treated with H₂O and boneblack gave 0.2 g. of a compound C₁₉H₂₂O₉, m. 208-9° (from H₂O), which, in MeOH, failed to react with CH₂N₂. XXIa (2 g.) heated 0.5 hr. with a mixture of 8 cc. H₂SO₄ and 12 cc. H₂O, evaporated, heated 1 hr. at 100°, and diluted with H₂O gave 0.2 g. of a flocculent product, which, when methylated, formed the dilactone (XXIV), m. 249° (from MeOH). IX (2 g.) heated with 200 cc. H₂O, treated with 1.5 cc. H₂SO₄ in 15 cc. H₂O, cooled to 0°, and stirred vigorously with 2.6 g. KMnO₄ in 150 cc. H₂O gave 0.8 g. XXIa. IX (3 g.) treated at 0° with 1 volume HNO₃ (d. 1.53) in 1 volume glacial AcOH, dissolved gradually, forming the flocculent compound (XXV), carbonizing without melting at 300-20° (after purification by washing with AcOH, then hot Me₂CO). The original mother liquor poured into ice H₂O yielded more XXV (total yield 1.5 g.). XXV was difficultly sol in most organic solvents, but dissolved slowly in boiling Ac₂O; it reduced alkaline KMnO₄. Crude XXV esterified by heating 8 hrs. with Me₂SO₄ in MeOH yielded the crystalline compound (XXVI), m. 242° (decomposition) (from MeOH), giving no test for nitrolic acid. The tetra-Me ester of IXa (6 g.) in 80 cc. AcOEt ozonized 1.5 hrs. at 0°, shaken with 20 cc. H₂O, 20 cc. more H₂O added, and air was blown through the mixture, the solution evaporated in vacuo, the residual oil shaken 5 hrs. with 1 g. Raney Ni and H at 170°/100 atmospheric, cooled, dissolved in MeOH, treated with C filtered, evaporated, the oil heated 0.5 hr. on the steam bath with 30 cc. HNO₃ (d 1.4) until fuming ceased, then evaporated to 0.5 volume, treated with 2 vols. H₂O, kept overnight at 0°, filtered, evaporated in vacuo, freed from HNO₃ by means of HCHO, and the residue dissolved in MeCN and filtered gave on long standing a small amount of cis-1,trans-2, trans-3,cis-4-tetracarboxycyclohexane m. 224°, (from AcOEt); tetra-Me ester, m. 71° (from petr. ether), identical with an authentic sample and giving sharp m.p. depressions when mixed with each of 4 other known stereoisomeric tetracarbomethoxycyclohexanes. 48 references.

IT Synthesis
(diene, with styrene series)

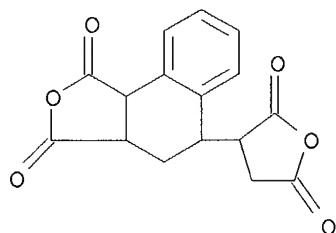
IT Substitution
(in styrene series)

IT Stereochemistry
(of maleic adducts with styrenes)

IT 1,2,3,4-Cyclohexanetetracarboxylic acid, cis,trans,trans,cis-
1,2-Naphthalenedicarboxylic acid, 1,2,3,4-tetrahydro-, cis,cis-
1,2-Naphthalenedicarboxylic acid, 4-methyl-
1,2-Naphthalenedicarboxylic anhydride, 4-methyl-
1,4-Ethanonaphthalene-5,6,9,10-tetracarboxylic acid, 1,4,4a,5,6,7,8,8a-
octahydro-8-hydroxy-8a-nitro-, γ-lactone, trimethyl ester
1,4-Ethanonaphthalene-5,6,9,10-tetracarboxylic acid, 1,4,4a,5,6,7,8,8a-
octahydro-8a-hydroxy-, γ-lactone
1,4-Ethanonaphthalene-5,6,9,10-tetracarboxylic acid, 1,4,4a,5,6,7,8,8a-
octahydro-8a-hydroxy-, γ-lactone, tri-Me ester
1,4-Ethanonaphthalene-5,6,9,10-tetracarboxylic dianhydride,
1,4,4a,5,6,7,8,8a-octahydro-8-hydroxy-8a-nitro-
1,4-Ethanonaphthalene-5,6,9,10-tetracarboxylic dianhydride,
1,4,4a,5,6,7-hexahydro-
1-Naphthalenesuccinic acid, 3(or 4)-carboxy-
1-Naphthalenesuccinic acid, 3(or 4)-carboxy-, trimethyl ester
1-Naphthalenesuccinic acid, 3,4-dicarboxy-
1-Naphthalenesuccinic acid, 3,4-dicarboxy-, tetramethyl ester
1-Naphthalenesuccinic acid, 3,4-dicarboxy-1,2,3,4-tetrahydro-, tetra-Me
esters

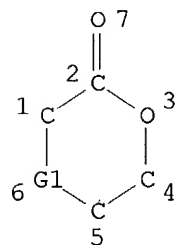
- 1-Naphthalenesuccinic acid, 3,4-dicarboxy-1,2-dihydro-
1-Naphthalenesuccinic acid, 3,4-dicarboxy-1,2-dihydro-, tetramethyl ester
1-Naphthalenesuccinic anhydride, 3(or 4)-carboxy-
1-Naphthalenesuccinic anhydride, 3,4-dicarboxy-, anhydride
1-Naphthalenesuccinic anhydride, 3,4-dicarboxy-1,2-dihydro-, anhydride
1H-9a,5-(Epoxy-methano)-6,9-ethano-1,4-methano-2-benzoxepin-12,13-
dicarboxylic acid, 3,4,5,5a,6,9-hexahydro-3,11-dioxo-, dimethyl ester
1H-Benzonaphthene, 2,3-dihydro-
1H-Benzonaphthene, 2,3-dihydro-, picrate
6,9-Ethano-1,4-methano-2-benzoxepin-5,10,11-tricarboxylic acid,
1,3,4,5,5a,6,9,9a-octahydro-9a-nitro-3-oxo-, trimethyl ester
8aH-4a,8-(Epoxy-methano)-1,4-ethanonaphthalene-7,11,12-tricarboxylic acid,
1,4,5,6,7,8-hexahydro-9-oxo-
8aH-4a,8-(Epoxy-methano)-1,4-ethanonaphthalene-7,11,12-tricarboxylic acid,
1,4,5,6,7,8-hexahydro-9-oxo-, trimethyl ester
Chalcone, 4'-dimethylamino-, hydrochloride
Chalcone, 4'-tert-butyl-
Naphtho[1,2-c]furan-5-succinic anhydride, 1,3,4,5-tetrahydro-1,3-dioxo-
Naphtho[1,2-c]furan-5-succinic anhydride, 1,3-dihydro-1,3-dioxo-
IT 8aH-4a,8-(Epoxy-methano)-1,4-ethanonaphthalene-7,11,12-tricarboxylic acid,
1,4,5,6,7,8-hexahydro-5-hydroxy-9-oxo-
(and derivs.)
IT 4H-Phenaleno[1,2-c]furan-6-carboxylic acid, 5,6,6a,7,7a,8,10,10a-octahydro-
4,8,10-trioxo-
(and isomer)
IT 1,4-Ethanonaphthalene-5,6,9,10-tetracarboxylic acid, 1,4,4a,5,6,7,8,8a-
octahydro-8,8a-dihydroxy-, di- γ -lactone di-Me ester
1,4-Ethanonaphthalene-5,6,9,10-tetracarboxylic acid, 1,4,4a,5,6,7,8,8a-
octahydro-8,8a-dihydroxy-, γ -lactone
(and other derivs.)
IT 1H-Benzonaphthene-1,2,4-tricarboxylic acid, 2,3,3a,4,5,6-hexahydro-6-oxo-,
1,2-anhydride
(isomers and other derivs.)
IT 1-Naphthalenesuccinic acid, 3,4-dicarboxy-1,2,3,4-tetrahydro-
1-Naphthalenesuccinic anhydride, 3,4-dicarboxy-1,2,3,4-tetrahydro-,
anhydride
(stereoisomers)
IT 31863-62-4, Acetamide, N-4-sulfamoyl-1-naphthyl-
(acyl derivs.)
IT 124924-89-6, 1,4-Ethanonaphthalene-5,6,9,10-tetracarboxylic acid,
1,4,4a,5,6,7-hexahydro-
(and derivs.)
IT 100-42-5, Styrene
(and derivs., diene syntheses, etc., of)
IT 399-10-0, Chalcone, 4'-**fluoro**- 956-02-5, Chalcone, 4'-chloro-
1152-48-3, Chalcone, 4'-nitro- 2088-87-1, 1,2-Naphthalenedicarboxylic
acid 2378-25-8, Chalcone, 3'-**fluoro**- 2403-27-2, Chalcone,
4'-bromo- 2657-25-2, Chalcone, 4'-hydroxy- 4420-43-3,
2-Naphthaleneacetic acid, 3-hydroxy-, γ -lactone 5343-99-7,
1,2-Naphthalenedicarboxylic anhydride 7466-60-6, Chalcone, 4'-iodo-
10060-32-9, 1,2-Naphthalenedicarboxylic acid, dimethyl ester 16619-21-9,
Chalcone, 3'-nitro- 16619-32-2, Chalcone, 3'-methyl- 16619-38-8,
Chalcone, 2'-nitro- 19811-14-4, Chalcone, 4'-isopropyl- 20426-48-6,
Chalcone, 3'-chloro- 25023-37-4, Chalcone, 3'-bromo- 36063-03-3,
1,2,4-Naphthalenetetracarboxylic acid, trimethyl ester 36439-98-2,
1,2,4-Naphthalenetetracarboxylic acid 37471-70-8, Chalcone, 4'-ethyl-
107921-62-0, Chalcone, 3'-iodo- 108013-31-6, 1,2,3,4-
Cyclohexanetetracarboxylic acid, tetramethyl ester

(preparation of)
 IT 108-31-6, Maleic anhydride
 (reactions of, with styrenes)
 IT 13912-65-7, Naphtho[1,2-c]furan-5-succinic anhydride,
 1,3,3a,4,5,9b-hexahydro-1,3-dioxo-
 (stereoisomers)
 IT 13912-65-7, Naphtho[1,2-c]furan-5-succinic anhydride,
 1,3,3a,4,5,9b-hexahydro-1,3-dioxo-
 (stereoisomers)
 RN 13912-65-7 HCAPLUS
 CN Naphtho[1,2-c]furan-1,3-dione, 3a,4,5,9b-tetrahydro-5-(tetrahydro-2,5-
 dioxo-3-furanyl)- (9CI) (CA INDEX NAME)



=> => D QUE

L7 STR



REP G1=(0-1) C
 NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

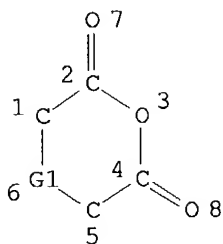
GRAPH ATTRIBUTES:
 RSPEC I
 NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE

L9 72403 SEA FILE=REGISTRY SSS FUL L7
 L10 70398 SEA FILE=HCAPLUS ABB=ON L9
 L11 169 SEA FILE=HCAPLUS ABB=ON L10 AND REFRIG?
 L12 17 SEA FILE=HCAPLUS ABB=ON L11 AND COMPOSITION?
 L13 100 SEA FILE=HCAPLUS ABB=ON L10(L) COMPAT?
 L15 0 SEA FILE=HCAPLUS ABB=ON L13 AND REFRIG?
 L16 233 SEA FILE=HCAPLUS ABB=ON L10 AND COMPATIBILI?
 L17 0 SEA FILE=HCAPLUS ABB=ON L16 AND REFRIG?
 L20 8 SEA FILE=HCAPLUS ABB=ON L13 AND FLUORO?

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

L21 25 SEA FILE=HCAPLUS ABB=ON L12 OR L15 OR L17 OR L20
 L22 11 SEA FILE=HCAPLUS ABB=ON L11 AND FLUORO?
 L23 31 SEA FILE=HCAPLUS ABB=ON L21 OR L22
 L24 STR



REP G1=(0-1) C
 NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RSPEC I
 NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE

L26 8833 SEA FILE=REGISTRY SUB=L9 SSS FUL L24
 L27 63570 SEA FILE=REGISTRY ABB=ON L9 NOT L26
 L28 53311 SEA FILE=HCAPLUS ABB=ON L27
 L29 16 SEA FILE=HCAPLUS ABB=ON L28(L)COMPATIBILI?
 L31 5 SEA FILE=HCAPLUS ABB=ON L29 AND COMPOSITION?
 L32 5 SEA FILE=HCAPLUS ABB=ON (L23 OR L31) NOT L23

=> D L32 BIB ABS HITIND HITSTR 1-5

L32 ANSWER 1 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1999:313328 HCAPLUS
 DN 131:120749
 TI Selection of Solid Dosage Form **Composition** through
 Drug-Excipient Compatibility Testing
 AU Serajuddin, Abu T. M.; Thakur, Ajit B.; Ghoshal, Rabin N.; Fakes, Michael
 G.; Ranadive, Sunanda A.; Morris, Kenneth R.; Varia, Sailesh A.
 CS Pharmaceuticals R&D Department, Bristol-Myers Squibb Pharmaceutical Research
 Institute, New Brunswick, NJ, 08903, USA
 SO Journal of Pharmaceutical Sciences (1999), 88(7), 696-704
 CODEN: JPMSAE; ISSN: 0022-3549
 PB American Chemical Society
 DT Journal
 LA English
 AB A drug-excipient compatibility screening model was developed by which
 potential stability problems due to interactions of drug substances with
 excipients in solid dosage forms can be predicted. The model involved
 storing drug-excipient blends with 20% added water in closed glass vials
 at 50° and analyzing them after 1 and 3 wk for chemical and phys.
 stability. The total weight of drug-excipient blend in a vial was usually
 kept at about 200 mg. The amount of drug substance in a blend was determined
 on
 the basis of the expected drug-to-excipient ratio in the final

formulation. Potential roles of several key factors, such as the chemical nature of the excipient, drug-to-excipient ratio, moisture, microenvironmental pH of the drug-excipient mixture, temperature, and light, on dosage form stability could be identified by using the model. Certain phys. changes, such as polymorphic conversion or change from crystalline to amorphous form, that could occur in drug-excipient mixts. were also studied. Selection of dosage form **composition** by using this model at the outset of a drug development program would lead to reduction of "surprise" problems during long-term stability testing of drug products.

CC 63-6 (Pharmaceuticals)

IT Drug interactions

(physicochem.; selection of solid dosage form **composition** through drug-excipient compatibility testing)

IT Solubility

(selection of solid dosage form **composition** through drug-excipient compatibility testing)

IT Drug delivery systems

(solids; selection of solid dosage form **composition** through drug-excipient compatibility testing)

IT 9004-34-6, Cellulose, biological studies

RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

(microcryst.; selection of solid dosage form **composition** through drug-excipient compatibility testing)

IT 81131-74-0 **85956-22-5** 134528-32-8 136590-28-8 233601-04-2

233601-05-3 233601-06-4 233601-07-5

RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)

(selection of solid dosage form **composition** through drug-excipient compatibility testing)

IT 77181-69-2, Sorivudine 81131-70-6, Pravastatin sodium 88889-14-9, Fosinopril sodium 111223-26-8, Ceronapril 156715-37-6, Ifetroban sodium 233601-02-0 233601-03-1

RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

(selection of solid dosage form **composition** through drug-excipient compatibility testing)

IT 57-11-4, Octadecanoic acid, biological studies 63-42-3, Lactose

69-65-8, D-Mannitol 557-04-0 1309-37-1, Iron oxide (Fe₂O₃), biological studies 4070-80-8, Sodium stearyl fumarate 7757-93-9, Dibasic calcium phosphate 12227-89-3, Black iron oxide 51274-00-1, Yellow iron oxide

RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

(selection of solid dosage form **composition** through drug-excipient compatibility testing)

IT **85956-22-5**

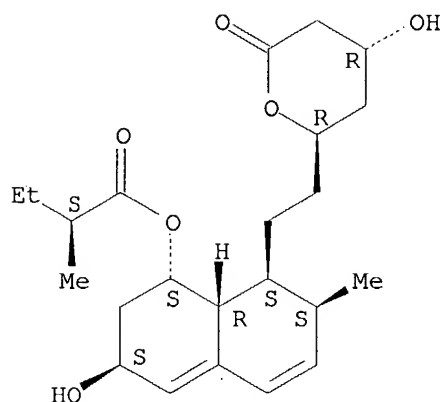
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)

(selection of solid dosage form **composition** through drug-excipient compatibility testing)

RN 85956-22-5 HCAPLUS

CN Butanoic acid, 2-methyl-, (1S,3S,7S,8S,8aR)-1,2,3,7,8,8a-hexahydro-3-hydroxy-7-methyl-8-[2-[(2R,4R)-tetrahydro-4-hydroxy-6-oxo-2H-pyran-2-yl]ethyl]-1-naphthalenyl ester, (2S)- (9CI) (CA INDEX NAME)

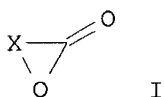
Absolute stereochemistry.



RE.CNT 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

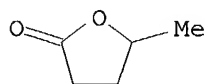
L32 ANSWER 2 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1996:573979 HCAPLUS
DN 125:196802
TI Lactone-modified organopolysiloxanes with good compatibility and their
manufacture
IN Aida, Akihiko; Nakai, Noboru; Isozaki, Osamu
PA Kansai Paint Co Ltd, Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08169955	A2	19960702	JP 1994-318006	19941221
	JP 3500477	B2	20040223		
	US 5583246	A	19961210	US 1995-573545	19951215
PRAI	JP 1994-318006	A	19941221		
GI					



AB The title polymers shown as $R_1O[SiO(OR_2)(OR_3)]_nR_4$ [$R_1-4 = Me, Et, Pr, Me_2CH, (XCO_2)mR_5; n = 1-100, \geq 1$ of $R_1-4 = (XCO_2)mR_5; R_5 = Me, Et, Pr, Me_2CH; X = C_2-14$ bivalent saturated hydrocarbon; $m = 1-3$] are manufactured by ring-opening addition reaction of lactones I with $R_6O[SiO(OR_7)(OR_8)]_nR_9$ ($R_6-9 = Me, Et, Pr, Me_2CH$). Thus, 744 g Colcoat ES 40 was treated with 684 g Placel M at 140° for 7 h in the presence of 7 g $BuSn(OC_8H_{17})_3$ (II) to give a polymer with M_n 1600. Then, 30 parts thus obtained polymer was blended with 70 parts Bu methacrylate-2-hydroxyethyl methacrylate-styrene copolymer and 1 part II and diluted to give a curable **composition** with solid content 50% showing good coatability.

IC ICM C08G077-445
ICS C09D183-06
CC 35-8 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 42
IT **108-29-2DP**, γ -Valerolactone, reaction products with siloxanes 502-44-3DP, Placel M, reaction products with siloxanes 11099-06-2DP, Colcoat ES 40, reaction products with lactones 12002-26-5DP, Methyl silicate, reaction products with lactones
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (manufacture of lactone-modified siloxanes with good **compatibility** for coatings)
IT **108-29-2DP**, γ -Valerolactone, reaction products with siloxanes
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (manufacture of lactone-modified siloxanes with good **compatibility** for coatings)
RN 108-29-2 HCAPLUS
CN 2(3H)-Furanone, dihydro-5-methyl- (8CI, 9CI) (CA INDEX NAME)



L32 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1983:126959 HCAPLUS
DN 98:126959
TI Miscible blends prepared from two crystalline polymers
AU Aubin, Madeleine; Bedard, Yves; Morrisette, Marie France; Prud'homme, Robert E.
CS Chem. Dep., Laval Univ., QC, G1K 7P4, Can.
SO Journal of Polymer Science, Polymer Physics Edition (1983), 21(2), 233-40
CODEN: JPLPAY; ISSN: 0098-1273
DT Journal
LA English
AB DSC was used to determine the miscibility behavior of several polyester-Saran blends, the 2 polymers forming these blends being semicryst. Saran is miscible with polycaprolactone (I) [24980-41-4], polyvalerolactone [26354-94-9], poly(butylene adipate) [24936-97-8], and poly(hexamethylene sebecate) [26762-10-7], since a single glass-transition temperature (T_g) was observed at each **composition**. However, immiscibility was found between Saran and poly(ethylene adipate) [24937-05-1], poly(ethylene succinate) [25667-11-2], poly(β -propiolactone) [25037-58-5], and poly(α -methyl- α -propyl- β -propiolactone) [25188-77-6], since 2 T_g 's were recorded at several compns. Blends were obtained containing, over a wide range of compns., a miscible amorphous phase and two different types of crystals. From m.p. depression data on I and Saran crystals, thermodyn. interaction parameters (χ) were calculated and were different for I-rich blends and for Saran-rich blends, suggesting a variation of χ with **composition**. The miscibility of Saran with polyesters was attributed to a β -hydrogen bonding interaction or a C:O/CCl dipole-dipole interaction.
CC 36-6 (Physical Properties of Synthetic High Polymers)
IT 24936-97-8 24937-05-1 24938-37-2 24938-43-0 24980-41-4

25037-58-5 25103-87-1 25188-77-6 25248-42-4 25265-42-3
 25569-53-3 25667-11-2 **26354-94-9** 26499-05-8 26745-88-0
 26762-10-7

RL: PRP (Properties)
 (**compatibility** of, with Saran)

IT **26354-94-9**

RL: PRP (Properties)
 (**compatibility** of, with Saran)

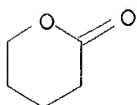
RN 26354-94-9 HCAPLUS

CN 2H-Pyran-2-one, tetrahydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 542-28-9

CMF C5 H8 O2



L32 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1983:35542 HCAPLUS

DN 98:35542

TI Epoxy resin **compositions** with good heat-shock resistance

PA Toshiba Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 57125244	A2	19820804	JP 1981-10182	19810128
PRAI	JP 1981-10182		19810128		

AB Epoxy resin compns. having good heat-distortion temperature and heat-shock crack

resistance contain a polyester-polyether derived from 1,4,6-trioxaspiro[4.4]nonane (I), hydroquinone diglycidyl ether (II), and γ -butyrolactone (III) and curing agents. Thus, a **composition** of Epikote 828 [25068-38-6] 100, copolymer (IV) [**84128-34-7**] (derived from I 90, II-III adduct 10, and BF₃.Et₂O 1 mol, weight-average mol.

weight

25,000) 10, tetrahydrophthalic anhydride 80, and benzyldimethylamine 1 part having good **compatibility** was heated 1 and 5 h at 100 and 150° to give test pieces having heat-distortion temperature 115° and average heat-shock cycles before crack formation in metal-inserted samples 11.6, compared with 115 and 0.6, resp., for a similar **composition** without IV.

IC C08L063-00; C08L071-00

CC 37-6 (Plastics Manufacture and Processing)

L32 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN

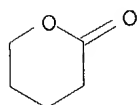
AN 1982:545570 HCAPLUS

DN 97:145570

TI Studies of polyester/chlorinated poly(vinyl chloride) blends
 AU Belorgey, Georges; Aubin, Madeleine; Prud'homme, Robert E.
 CS Dep. Chim., Univ. Laval, Quebec, QC, G1K 7P4, Can.
 SO Polymer (1982), 23(7, Suppl.), 1051-6
 CODEN: POLMAG; ISSN: 0032-3861
 DT Journal
 LA English
 AB Chlorinated PVC was solution-blended with polycaprolactone (I) [25248-42-4], poly(hexamethylene sebacate) II) [26762-10-7], poly(α -methyl- α -propyl- β -propiolactone) (III) [25188-77-6], polyvalerolactone (IV) [26354-94-9], poly(ethylene adipate [24937-05-1], poly(ethylene succinate) [25667-11-2], and poly(β -propiolactone) [25037-58-5]. Glass transition temps. showed that chlorinated PVC was miscible with polyesters having a CH₂-CO₂ ratio ratio >3:1 (i.e. I, II, III, IV). The Gordon-Taylor k parameter (1952) was 1.0 and 0.56 for I and II blends, resp., showing that chlorinated PVC interacts more strongly with polyesters than does PVC, owing to its higher Cl content.
 CC 36-6 (Physical Properties of Synthetic High Polymers)
 IT Spherulites
 (size of, of chlorinated PVC-polycaprolactone blends, **composition** effect on)
 IT 24937-05-1 24938-37-2 24938-43-0 25037-58-5 25188-77-6
 25248-42-4 25265-42-3 25569-53-3 25667-11-2 **26354-94-9**
 26499-05-8 26745-88-0 26762-10-7
 RL: PRP (Properties)
 (**compatibility** of, with chlorinated PVC)
 IT **26354-94-9**
 RL: PRP (Properties)
 (**compatibility** of, with chlorinated PVC)
 RN 26354-94-9 HCAPLUS
 CN 2H-Pyran-2-one, tetrahydro-, homopolymer (9CI) (CA INDEX NAME)

 CM 1

 CRN 542-28-9
 CMF C5 H8 O2



=>

=>